How Turkish Am I?: A 2nd-Generation Turkish-American Woman's Identity Navigation Through Mechanical Engineering Education (Diversity)

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Introduction

My name is Yağmur Önder. My entire life has surrounded that name. My name. It's gone through the mud of different variations, and I'm sure it's not done. When I was in elementary school, I preferred "ya-MORE", because it rolled off the tongue easier and, as a little girl, I thought it sounded prettier. I used to question why I didn't have a more American-sounding name: At Panera, I went by "Emily", and even at Taco Bell, I went by "Julia", at least until someone else grabbed my order by accident. As I grew up, I transitioned into a "YA-more", which is closer to the Turkish pronunciation, but I've found it required less repeated attempts when introducing myself because I compare it to the word "anymore".

I was born in Miami, FL, and moved to Orlando, FL after a couple years, but ultimately, I grew up in the American south. I was raised by two Turkish nephrologists with a twin sister. We grew up in Morgantown, West Virginia before attending high school in Memphis, Tennessee. Now, I go to university in Indiana and my sister in New York City, while my dad is working in Mississippi and my mom in Tennessee. Most of the rest of my family resides in Turkey.

At Purdue University, I'm an undergraduate sophomore studying Mechanical Engineering with a minor in Global Engineering Studies. I used to be a part of an all-female racing team, and I now dedicate my time to my work in Engineering Education research and GEARE, a global engineering studies program. Through my time in university, I've developed new strong interests in animation, renewable energy, and programming/data science. Outside of my studies, I grew up as an athlete playing tennis then ran cross country in high school, and now in university, I lift weights. My friends have international backgrounds and majority of them study STEM (mainly engineering), with a couple studying economics.
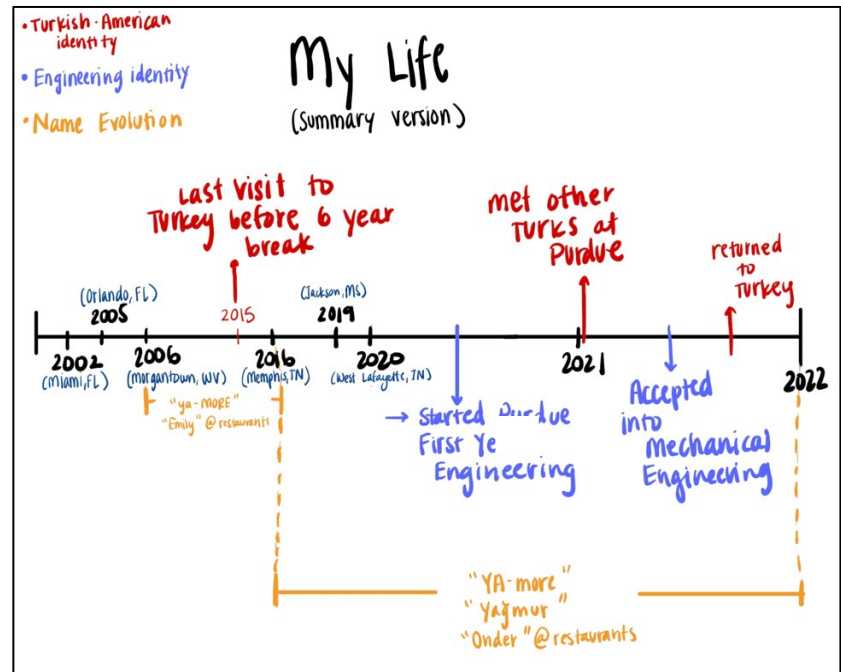

Figure 1: Timeline of my life

These are the spaces I exist in: ethnically, geographically, academically, and socially. They serve as the foundation of the rest of this paper. A summarized timeline of what has been significant in my identity development is shown in Figure 1. As a 2nd-generation Turkish-American immigrant

woman studying mechanical engineering, the transformation of my own malleable identity goes under the microscope; I investigate my sense of belonging in a space that is both predominantly white and predominantly male [1].

The purpose of this study is to add to the existing literature that discuss my identities. I am a woman engineer and have studied the literature investigating the development of women's engineering identities [2], [3], [4], [5], [6], [7]. However, who I am is more than just a woman engineer. I'm also a 2nd-generation Turkish-American immigrant, and research has also been conducted into the identity development of 2nd-generation immigrants [8], [10], [16]. The goal of this paper is to add to the gap of literature addressing the intersectionality of different identities. I'm writing to the upcoming engineers, perhaps even the next Turkish-American woman mechanical engineering student, and the current existing engineering community to share where I've struggled and where I've succeeded. I use autoethnography as the methodology to critically analyze identity development, as others have used the same methodology to understand culture and engineering [8], [9], [10]. I hope the main takeaway is the recognition that who we are as engineers do not take up the entirety of who we can and choose to be, and I hope my work will give the courage for the next person to share their story.

Methodology

I use autoethnography as a qualitative research method to understand my identity development. Autoethnographies use personal experience as a means of providing insightful knowledge such that the author critically analyzes their own experiences. Ellis and Adams so nicely describe the autoethnography research method as such:

"Autoethnography implies connection: the stories we write connect self to culture; the way we research and write these stories blends social science methods with the aesthetic sensibilities of the humanities, ethnographic practices with expressive forms art and literature, and research goals of understanding with practical goals of empathy, healing, and coping. We write concrete stories about our lives because we think that the stories of a *particular* life can provide a useful way of knowing about the general human experience. These stories also offer insight into the patterned processes in our interactions and into the constraints of social structures. As well, *telling* and *listening* to stories and comparing our stories to those of others are how we learn, cope, and make our way in society." [10, pp. 255]

In gathering data, I journaled over the course of 6 months, reflecting on past and current experiences. My journal includes drawings, written reflections, and transcripts of voice recordings I took as an alternative to writing. Additionally, I sought out conversations with individuals that I found to aid my understanding of how I identified myself through listening to their stories (including other Turks, Turkish-Americans, family, and engineers). In sharing my stories, I used pseudonyms to protect the privacy of the people in my life.

I also took to reading stories. This includes, but is not limited to, *How Jews Became White Folks & What That Says About Race in America [12]*, *Why Are All The Black Kids Sitting Together in the Cafeteria [13]*, and *Legacies: The Story of the Immigrant Second Generation [14]*. I also read *The Idiot* by Elif Batuman [15] as it is a semiautobiography by a Turkish-

American author about a Turkish-American starting college. Reading these stories provide both insight and inspiration as to how I see myself in the worlds I exist in, such as through language, race, community, and social recognition.

First, I explain two theories central to my autoethnography: The engineering identity model and the temporary ethnic disconnect (TED), the latter being a phenomenon frequently discussed in literature concerning 2nd-generation Turkish-Americans. Understanding how these two theories play a role in my development as an engineering student allows the generalizability of my story to other individuals that identify either as a (woman) engineering student or as Turkish-American/2nd-generation immigrant. Understanding the intersection of these two theories together speak to, I hope, how engineering students, regardless of race, gender, class, or creed, both persist in their engineering education but also become well-rounded engineers approaching problem-solving from the experiences of their own intersectional identities.

Theoretical Framework

My autoethnography draws on the works of Godwin [2] and Bulut [16] to understand the intersection of my engineering identity and Turkish-American identity, how they influence each other, and how they affect my sense of belonging.

Engineering Identity Model Theory

The Engineering Identity Model theory is often discussed in literature surrounding women in engineering, or women in STEM (Science, Technology, Engineering, Mathematics) [2] ,[3], [4], [5]. Even if the model is not explicit, components of engineering identity such as competency/self-efficacy and recognition (from herself and others) are still discussed [6], [7]. Godwin's Engineering Identity Model [2] for early post-secondary students (as this autoethnography fits into this category) is situated in the idea of "role identity" in that "the individual attaches to the context of a social and cultural role. An individual has as many selves or identities as he or she has groups of people with which he or she interacts. Some identities become more salient based on the particular context and social situation in which an individual is immersed" [2]. The Engineering Identity Model developed includes interest (the desire/curiosity to think about and do well in engineering), performance/competency (belief in the ability to perform required engineering tasks and understand engineering context), and recognition (feeling that others see them as a good engineering student).

Temporary Ethnic Disconnect Theory

The Temporary Ethnic Disconnect, as described by Zerrin Bulut [16] building off of Ilhan Kaya's [17] study of identity, is an ethnic assessment, generally during college years, in which the 2nd-generation individual is at a "crossroads": either they choose to connect more or disconnect to their Turkish identity as a Turkish-American. It's a choice between complete assimilation into American culture or committing/re-committing to their "Turkishness" perhaps through language and traditions. Components such as race, language, family, and space are at play in the negotiation of their identities. Particularly for Turkish-Americans, race is considered to be ambiguous in America for them as past literature has explored the "making of Turkishness"

[18]. Generally, most Turkish-Americans identify themselves as white in census surveys, either out of convenience or desire to assimilate [18].

Research Question

How does a 2nd-generation Turkish-American woman engineering student navigate her ethnic and engineering identities within the first two years of college?

Karen Brodkin [12], author of *How Jewish People Became White Folks and What That Says About Race in America,* discusses the difference between ethnoracial assignment and ethnoracial identity. In ethnoracial assignment, we have less agency as there is a system of classification of people determined by those in power in the racial hierarchy. Ethnoracial identity, however, is constructed ourselves, albeit partially influenced by our ethnoracial assignment, "with a great deal of self-consciousness and emotional investment" [11, pp. 103]. I explore the sense of my ethnoracial identity as a 2nd-generation Turkish-American woman studying mechanical engineering at Purdue University. I'm classified as 2nd-generation from the US Census's definition, "The second generation refers to those with at least one foreign-born" [19], as I have two "foreign-born" parents from Turkey. I answer the overarching question "How does a 2nd-generation Turkish-American woman engineering student navigate her ethnic and engineering identities within the first two years of college?", with subtopic questions to understand broader cultural experiences listed below:

a. How do we walk the line between the different cultures we are a part of? Is there even a line to walk?
b. Are there external stimuli that bring out more of one cultural identity versus another, or do we, as humans, have more agency in the worlds we walk in?

In this paper, I explore and analyze how my identities exist at the intersection with each other rather than being two mutually exclusive personas I occupy in different situations. I share personal experiences spanning the themes of relationships, perseverance, conflict, and individual agency along with models I have developed to illustrate components of how I've interpreted my life. The language in which I share my results may appear as though my identities oscillate between each other, but I've recognized that my engineering and Turkish (-American) identities complement each other in what I've deemed the space I occupy. After sharing my results from my data collection of journaling, reading, and reflecting after interactions with others (formal with scheduled meetings or informal with random daily interactions), I discuss how the Engineering Identity model [2] has been applicable in my life; Through the model's components of recognition, competency/performance, and interest, I extend the model to who I am, in addition to being an engineering student, as a Turkish-American woman. Ultimately, I address the complexity in answering my research questions listed above by evaluating the craving feeling I've recognized in needing to answer the question "Who am I?".

Results

Over the six-month period, four areas occurred in my data collection: relationships, perseverance, conflict, and individual agency. These areas supported or challenged my

understanding of my engineering and Turkish-American identities. The longer I chose to pursue development in my Turkish-American identity, the more I began to understand how my strengths in the development of my engineering identity could also be applied in what I deemed as weaknesses in my Turkish-American identity, and vice versa. While relationships may hold different meanings between identities, having a social group that recognizes my identities has seemed to strengthen how I see myself. Perseverance, which I typically associated with STEM (Science, Technology, Engineering, and Mathematics) education, may apply to situations of disagreement which showed to affect my behavior and priorities in what I pursued. Conflict can be discussed in tandem with perseverance given that it's an environment of disagreement, being whether I felt I belonged in a particular cultural space and what that meant for my individual identity. Lastly, agency/opportunity was categorized because of recognizing that certain serendipitous events occurred that benefitted the development of both my engineering and Turkish-American identities.

1. Relationships

The relationships I've developed in the span of my undergraduate studies thus far are listed in Figure 2, which includes my immediate family, extended family, professional network, Turkish Student Association, and friends. Items highlighted in green are relationships I've recorded to have supported my identities, items in red involve conflict or tension from experiences.

Figure 2: The relationships I've recorded to have had an impact on my identity development

Figure 2 illustrates what relationships may have contributed to the support or struggle with my Turkish-American identity and engineering identity developments. My immediate family and extended family are separate entities because they have distinctly different relationships in my life. My immediate family (mom, dad, twin sister) lives with me in the U.S., as I am a 2nd-generation Turkish-American. They are, what some literature may refer to as, my 'clan' [16] because growing up in Morgantown, West Virginia, I felt I didn't find a strong Turkish community, at least not one my age. I do, however, want to note that my parents befriended many Turks in West Virginia whom I view as my Turkish family in the United States. The women friends with my mom are people I view as aunts such that I know I can go to them for help. Other Turks I feel close to, such as my first Turkish-American friend from Memphis and her mom, get added to this family as I grow up. My extended family resides in Turkey, and for six years (all of high school and the start of university), I didn't see them. It wasn't by choice: every year, conflicting issues came up preventing our travel. Turkish
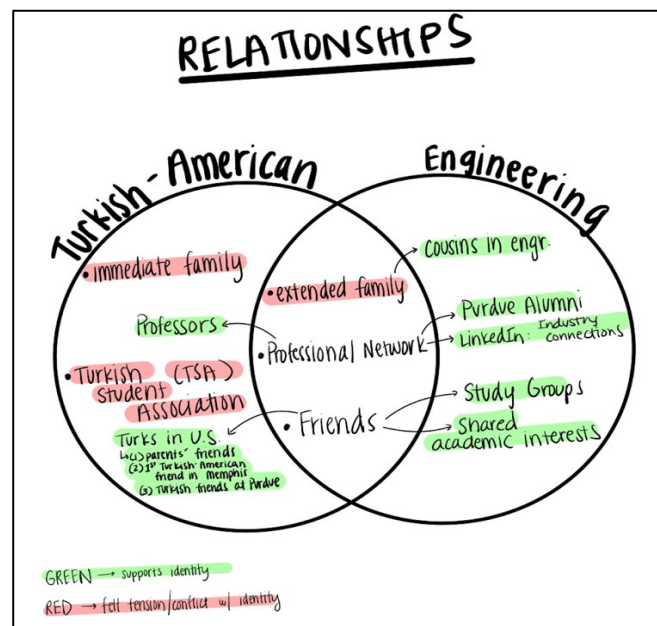
is spoken more than English with my extended family, but with my immediate family, my sister and I spoke English more often while my parents spoke Turkish. Figure 2 illustrates a sense of support and conflict with both my immediate and extended family. With my immediate family, especially towards the end of my high school education, I felt resentment towards my parents for my sister and I struggling with Turkish. I reflected in my journal feeling as though it was easier to blame them for not taking us to Turkey for six years than to accept blame on myself that it's my responsibility for how I want to carry my family's culture in America. The support, in contrast, came from my feelings that my parents respect the agency of my sister and I: Growing up in the U.S. has distinct contrasts compared to Turkey, especially with what opportunities are available and what it means to be a young woman in the U.S. versus Turkey. Understanding their choices outside of parenthood in their immigration to the U.S. has helped me understand their journeys as I have tried to understand mine. With that understanding came the realization that maintaining culture needs to be a conscious act for my sister and me. This is because my parents had the time in Turkey and felt secure in their Turkishness, while I felt my Turkishness was often wavering. After recognizing that perhaps a greater conscious effort is necessary to feel more secure in my Turkishness, my parents appear to enjoy sharing their Turkish culture with language, food, and entertainment with my sister and me. For my extended family, conflict is reflected in my journal entry concerning our language fluency:

> *I've figured out that even though everyone knows my sister and I can understand a good amount of Turkish, they speak English a lot. If they don't know any English, then they only speak Turkish. I think there's 3 reasons: (1) They hear English, so their brain says to speak in English – Deniz (pseudonym) and I have grown up hearing Turkish and speaking English [so we're used to bilingual conversations]; (2) they think it's a topic we won't understand in Turkish; (3) They want to practice their English (basically the same reason we want to practice our Turkish).*

Internal conflict occurred when my family would speak English because I felt a lack of trust that we wouldn't be able to understand. However, the support came from my relationships with my grandmother or older aunts because their lack of fluency in English seemed to generate some excitement that they could communicate with my sister and I without the help of our parents translating.

Study groups are listed as a source of my relationships because they've largely been the foundation in my mechanical engineering education. Coming into university as an engineering major at an engineering-majority school, I was advised that it would be good to find friends through my classes and study groups. For example, as a second-semester mechanical engineering sophomore now, I spend a lot of my time studying and trying to understand my homework which I generally complete with the same group every day. The start of the group began with four of us procrastinating on our thermodynamics homework until the last day and we were the only ones left in the Mechanical Engineering building on a Friday night. Having a study group helped me feel more supported and less isolated in my academic pursuits because I always had people I could meet up with if I wanted to.

My professional network as part of my development in university has consisted of my professional growth as a student pursuing research, learning of different industries, and making meaningful connections with professors in the Purdue University community. I have always been close to my teachers growing up, and that habit continued when I came to Purdue. I not only sought out to go to my professors' office hours to get extra help, particularly those involved in the Global Engineering learning community, but I specifically sought out Turkish professors. In high school, in deciding between my final two choices of universities, one comparison I made was whether there were Turkish professors. In hindsight, it seems like such an irrelevant factor, but I remember hoping to see some type of familiarity to help me in university. After 1.5 years at Purdue, I can say that I've developed a friendship with a Turkish professor in our Polytechnic school that has given me the parent perspective on maintaining Turkish for 2nd-generation Turkish-American immigrants as her son and I share the same language struggle. My professional network is also rooted in the relationships created in the engineering community through university connections and tools such as LinkedIn. As a student, it's been emphasized, I feel, that people love to share their experiences with engineering students and I've personally sought out engineers in different industries such as aerospace, animation, renewable energy, and more to help me figure out what I want to do with my degree in mechanical engineering. Any rejections in the pursuit of my professional development have not left a relevant impact on my desire to continue pursuing engineering, but rather I've viewed it as an opportunity to seek out new people.

The Turkish Student Association (TSA) is a student organization on campus dedicated to sharing Turkish culture and having a dedicated group of Turks. Coming from a private high school that had an international student body but only one other Turkish-American aside from my sister and me, I was excited to find what I felt would be my community or second family. I'm not active in the organization, but I have gone to some events. In a lunch with my mentor, the word "fraud" accurately described how I felt/feel in Turkish spaces, which I thought greatly influenced my relationships with other Turks. I celebrated Cumhuriyet Bayramı (Turkish Republic Day) with the TSA in my third semester, and I was sweating through my clothes the entire night, regardless of friends inviting me to talk and dance; I felt like I wasn't a full insider - I spoke with broken Turkish with an English accent, I didn't (and still don't fully) know the history behind Republic Day, and even found myself surrounded by other Turkish-Americans. Almost desperately, I wanted to be seen as Turkish but have concluded that perhaps Turks see me as American, and Americans see me as Turkish/Turkish-American. It was as if there was a boundary in my relationships that separated me from them: I was even invited to the Turks' table (Turks' being international students rather than students from the U.S.), but I was worried I would be taking somebody else's spot as the table was already full. Figure 2 displays a conflicting relationship with the TSA and a supportive relationship with Turkish friends at Purdue because I have developed some friendships that have given me meaningful connections with those I feel share a similar cultural background as me. However, feeling as though I'm a fraud in Turkish spaces has caused internal conflict in the development of my Turkish-American identity.

My social groups/friends encompass their own category as they support a strong sense of belonging with my choice in community. My name seemed to play a significant role in determining who I felt close to as I struggled a lot with re-pronouncing my name consistently at the start of university:

> ### Entry 1:
> *I started college in the pandemic. The first time I was called on [in a first-year engineering course], I had to correct the pronunciation of my name, something I'm used to doing every year in the first month of every new school year. What my professor later told me was that she was happy I corrected her and, in a discussion, I realized there are certain situations where I make sure I correct the pronunciation of my name. For example, in one of my extracurriculars, a girl I'd known for at least a semester through weekly meetings pronounced my name incorrectly when giving me instructions. Sometimes I can't tell if people fear they'll mispronounce my name and hope I'll correct them. I know I hope I don't mispronounce anyone else's name, but I didn't correct her at that moment... I didn't want to make her feel uncomfortable and I figured someone else in the team would say my name correctly and she would hear it...*

> ### Entry 2:
> <u>The First Person in My Life to Pronounce my Name Correctly (who isn't Turkish and hadn't heard it before):</u> *Mason (pseudonym) is the only person in my life that pronounced my name correctly before I was introduced to him. [When we first met in person], he yelled my name [correctly not pronouncing the 'g' in Yağmur] ... I didn't tell him until after we parted ways, but it meant so much to me that he looked up how to pronounce my name before we met. When I told him that he was the first one to do so, his response was literally, "for sure, breves [the 'g' in Yağmur has a breve] aren't THAT scary haha :)".*
>
> *After that, Hudson (pseudonym), a guy I met through Purdue Grand Prix was the next person to do so.*
>
> *I learned that you meet so many people in college and so many of those can fall through the cracks and I was really worried that I was going to have to keep re-pronouncing my name in social circles. However, I've learned that those who care enough will learn and remember how to pronounce my name, and that recognition is so important to me.*

The evolution of my name, said by myself and those around me, has changed to get closer to its accurate pronunciation over time. Ultimately, I feel my name is one of the closer ties to my Turkish identity since it is so distinctly different in a pool of my peers as I've grown up in the United States.

Additionally, my friend group is a mirror of hybrid identities such that I'm not the only one who's felt torn of over the boundary of different ethnicities: One is Japanese American and shared the same struggles with the Japanese Student Association as I have had with the Turkish

Student Association; One is from Chile but comes from Indian heritage; one has lived in Singapore, the UK, India, and is now in the States; Other friends of mine are from Michigan, Mexico, California, etc.. While I cannot speak on their personal experiences, we have shared mutual interests and struggles with language with our families and friends in addition to the desire, or lack of, travelling to our families' countries. I've met all of these friends through engineering, and they continue to be some of my closest friends in university. For two of them even, I wanted to share my Turkish culture with them that I bought them evil eyes, a Turkish artifact, when I went to Turkey. Sharing those artefacts with them is important to me because the artefact itself has given me a lot of comfort in its meaning that it protects me; Sharing that with people who have no genetic connection to Turkish culture demonstrates how I feel they recognize that part of my culture. Even if I struggled with the language, I've always had evil eyes with me as a reminder of my culture.

2. Perseverance

I was in a coffee shop, one I had been in a million times before. What made this time different was that I was meeting with a researcher from my professor's lab group because he was interested in what I was working on (this paper), and I was interested in his work (studying women in engineering). He asked a question that I repeated in my head for weeks after:

> *"Did you ever feel like, as a woman, that you didn't belong in [mechanical] engineering?",* he asked.

I couldn't remember verbatim what my answer was, but the question lingered in my head for a while. That day, I wrote to my professor:

> *I've been exploring this idea that my dad taught me: Once I accept the feeling and recognize that I don't belong in mechanical engineering (based on social interactions), then I've "failed" in the sense that I agree with that idea, but I don't agree with it. It's almost like there's an imaginary barrier for me when I don't let myself feel like I don't belong in mechanical engineering. I couldn't recall a moment where I felt like I didn't belong in engineering as a whole… only instances where I felt as I was figuring out where in engineering I want to be involved in. Considering that, in figuring out how "Turkish" I am, I think I've adapted that mindset there, too (not confident as much, but growing) after learning about other people's identities… The individuality that comes with American culture is how I choose to define how Turkish I am, and also how I define myself as a mechanical engineer(ing student).*

I feel, that day, I grasped how contrasting my identities were because I had been putting so much pressure on being accepted in Turkish spaces by others whereas in engineering spaces, the opinion of others never exceeded my opinion of myself as an engineer. Exceeded, in this sense, means that what I choose to pursue in engineering isn't a demotion because of how someone else perceives me as an engineer. This view of myself is defined as self-concept in psychology and it can change over time and affect my behavior [20]. It also addresses the idea of belonging in my research subtopic questions. By putting less of that pressure on myself to fit in Turkish spaces, the extent of conflict has been diminishing in my identities as there's less influence of others'

opinions on my sense of self. While those opinions did, and realistically sometimes continue to do so, construct barriers as I have struggled a lot with the idea that maybe I wouldn't fit in with the Turkish community as much as I would like, who I am as a person is more complex than just the layer of my ethnicity. For example, I am…

> … Turkish-American.
> … studying mechanical engineering.
> … a twin sister.
> … a traveler.
> … an athlete.
> … a daughter.
> … a friend.
> … a skydiving enthusiast.
> … a Boilermaker.
> … a Memphian.
> … a mountaineer.
> … Yağmur Önder.
> … to be determined…

Yumi Tomsha, a singer/voice teacher, describes this perfectly in a quote:

> *"I am not 'half Japanese' and 'half Lithuanian Jewish'. When I'm singing a Japanese folk song, I don't sing with half my voice, but with my whole voice. When I'm taping together my grandparents' Jewish marriage contract, worn by time but still resilient, it's not half of my heart that is moved, but my whole heart. I am complete, and I embody layers of identities that belong together. I am made of layers, not fractions." [21]*

Understanding this complexity of embodying layers of identities simultaneously builds bridges in those same spaces as the barriers because of how I've redefined my relationships over time: For example, I'm not active in the TSA, but I still put myself out of my comfort zone to attend events such as holidays because, being Turkish-American, I still celebrate those holidays and I've attended those events with Turkish friends I've met from my engineering classes. Perseverance, ultimately, is summarized in my consistent pursuit of studying engineering and exploring my Turkish heritage by my own decisions.

3. Conflict
Conflict, in the sense of a recurring topic, encompasses the contrast as to how I see myself versus how others see me and the extent of that disagreement, as well as my internal relationship with my ethnic identity.

First, how my ethnic identity has changed: Growing up in West Virginia, my dad loved turning the volume up with Turkish music playing at the drop off zone of my elementary school. My sister and I always asked him to turn it down because we didn't want any attention on us, especially with Turkish music playing. At that same school, I also remembered wishing I had a more American-sounding name, which is where the name Emily was decided upon when I would

go to restaurants. I tried making my name prettier and easier to pronounce for Americans so much so that the way my parents addressed me sounded different from my friends. I wasn't ashamed of being Turkish. I was ashamed of cultural markers that flagged me as different from other kids around me, such as my name or nose shape (keeping in mind I went to a public school in West Virginia where my sister and I were the only Turkish Americans in school). I have grown out of feeling shame, because I've wanted to express more of my Turkishness since starting university due to feeling the responsibility if want to keep that part of my identity. Over time, it's changed that now it's my sister and I blasting the Turkish music and instead of Emily, I use my last name at restaurants since it's easier to pronounce.

Next, on an external level, my racial identification has been a consistently ambiguous process of classification, such as census surveys, demographic information on applications, etc. I struggled writing about race greatly in my journal entries, largely because of the great amount of tension discussions of race brings in America given America's history of social hierarchies built on artificial social constructs of race [12]. I've felt because of America's education system being limited in its discussion of race, I was often confused as to what box I thought I needed to be in:

> *I am white, I hit the White checkbox on important forms as a way of identifying myself. Sometimes, when I was younger, I would select "Other" because I thought I didn't entirely fit into the category of white because, in addition to my name, I clearly did not have 'white' features, specifically with the shape of my nose and general face shape (it's interesting, I feel like I can tell when someone is Turkish before they speak just because of how they look/how their face is shaped).*

In exploring my choice of words when I said, "category of white", I've learned from Brodkin's [12] work that the construct of what it means to be "white" has changed over time in America from her discussion of the government's role in creating a race and ethnicity classification system: in 1965, a committee created a "a race and ethnicity classification system reflecting the nation's new immigration and addressed the need to monitor progress of affirmative action. The result was the now-familiar four racial groups: American Indian/Alaskan Native, Asian/Pacific Islander, black, and white… 'White' includes people of diverse European, Middle Eastern, and Indian ancestries… in official census categories in the last thirty years, the races of Mexicans, Middle Easterners, and East Indians have been shuttled back and forth between white and nonwhite." [12]

With my friends that have international backgrounds, I've even asked them how they racially identify me from the motivation that race is seen differently across the world given different cultural contexts. I predicted that they would be confused by the question because I figured everyone else knew what we each identified ourselves as, but rather than being confused, I received varying answers. The following accurately sums up who would identify me as what:

> *My friend group and I all squished together on a small couch in a friend's apartment. One friend, a Peruvian, wanted to cook us Peruvian food. Among us, there was a*

Japanese American, a Chilean, a number of Peruvians, a Singaporean/Indian, one white American with a Polish heritage, and myself, a Turkish-American. The diversity of cultures was not lost on us, in fact, we loved counting the different number of places we've all lived. The friend from the States made a joke somehow referring to the fact that there were only two white people. Most of this memory is forgotten for me, but what I remember is my friend from Singapore was confused as to who the second white person was. He was referring to me. Apparently, and this is consistent largely amongst my friends with international family heritages, calling me white feels to them as if it erases my Turkish side. My white friends see me as white. As for myself, given there is no ethnicity marker on demographic questions, I check White out of convenience. However, recently, summer research applications have had the option of describing how I choose to identify myself, for which I have selected and responded Turkish-American in addition to selecting White.

On another level, I have struggled, and sometimes continue to do so, with the feeling of being a fraud:

While I may view myself as Turkish-American (sometimes it feels like I have to remind myself of that, though, because of the separation I've had from Turkish spaces, especially now that I'm not in college [during a break]), there can be a disagreement with my social identity: People at my (very diverse/international) high school viewed me as Turkish-American and so do those closest to me, but in college, I'm seen a bit differently. I could be wrong in all of this: (Refer to Figure 3 for the following) The Turks see me as American; Americans see me as more of a different ethnic background, but they don't know what, and a very select few see me as Turkish American (my roommate who is one of my closest friends comes to mind). There's a lot of disagreement, I feel. In American spaces, it almost feels like I'm losing my Turkish identity. In Turkish spaces, I feel I'm not enough to be active in that environment (can't contribute much with language and cultural knowledge). I often question if I'm making too big a deal out of what Turkish I have left in me.
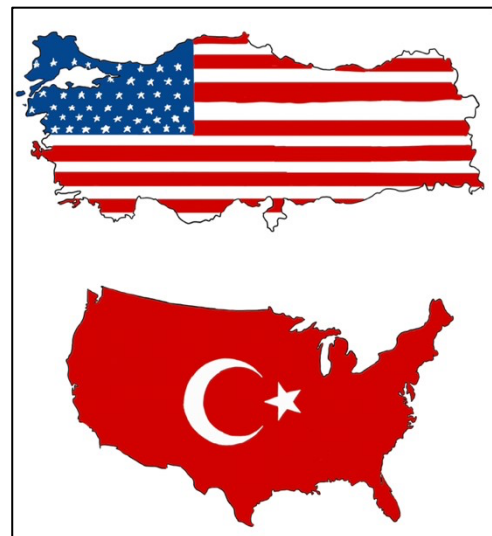

Figure 3: Graphical representation of feeling Turkish in America and American in Turkey

External validation, or lack thereof, has impacted my feeling of being a fraud, whether it be more or less so: A taxi driver in Turkey made me feel less of a fraud when he expressed his enjoyment with my sister and I's broken Turkish because we were at least trying to speak and he's apparently seen many children of immigrants lose the language entirely; An ice cream shop employee made me feel more so of a fraud as he was extremely confused in mistaking "cone" for

"chocolate" with my order because, to him, I looked Turkish but definitely didn't sound it; My Turkish friends my age take notice and joke about when my Turkish appears to have worsened, increasing my feeling of being less Turkish compared to them; Turkish hotel employees, despite hearing my sister and I's broken Turkish, claiming "You're parents are Turkish? You're Turkish!" in an elevator conversation lessened my feeling of being a fraud. While the extent of conflict has lessened over time as I've learned more of others' stories, the external versus internal disagreement had me questioning my "qualifications", albeit subjective and arbitrary, in being Turkish.

In contrast to my engineering identity, no one's ever told me I couldn't be an engineer, or that I wasn't qualified - There was no need for anyone to question the space I had reserved for me as an engineering student. Although, I still struggle with imposter syndrome because of my own perception of my performance in engineering, regardless of the space I take up. I define imposter syndrome as "doubting your abilities and feeling like a fraud" [22]. My experience with imposter syndrome has consisted of struggling to accept my accomplishments, according to those closest to me. I do feel confident that, with time, anyone can learn any skill. As the process of growth is constant and continuous, I've felt my imposter syndrome manifest itself less in my mind when I've found engineering areas such as 3D modeling and studying motion to be a genuine interest of mine. These interests are more firmly rooted in my desire to understand the application. I continue to struggle with imposter syndrome, largely in the scope of recognizing my achievements and feeling as though I could always be doing more, but, over time, I think we grow to learn what we want to prioritize for ourselves (leading into my next topic of individual agency). For me, that's been wanting to concentrate my learning in 3D modeling, which has strengthened how I see myself as an engineer with a concentrated interest in the field.

4. Individual Agency

The last topic of individual agency spans my choices in my university education. My choice of studying mechanical engineering is a choice I had with little influence from my family:

> *My engineering identity is very important to me because it's an identity I chose to pursue. My ethnic identity has family history behind it and my sister and I often count ourselves lucky that we are part of such a beautiful culture. However, my engineering identity is more directly formed by my interests and my choices as to what I want to do in my life. My family may have had a small impact in it, but at the end of the day, it's my passions that motivate me to persist in engineering. However, having cousins that have also pursued engineering has made me feel as if we share something outside of ethnicity.*

Additionally, as referenced in my relationship with my immediate family, over time, I've viewed my connection to my Turkish identity as needing a conscious effort to maintain. Choosing to develop my language fluency and find time to visit family has grown to become new priorities of mine and I've felt it's my responsibility, not my parents', to maintain that part of my identity. In the sense that I choose the spaces I want to exist in in the engineering community, translating that to my Turkish identity has brought more comfort: I've recognized the hybridity of my identity spanning Turkish and American spaces is an opportunity to construct a unique

intersection of which I feel I belong. In contrast to my engineering identity, I don't find needing to classify it as a responsibility to maintain: I maintain it naturally in my education, but it's still my choice to continue pursuing that contains its separate struggles (grades, navigating industry, etc.). As I've completed four academic semesters at Purdue University, I've learned that the identity of a mechanical engineer is defined in that there is no one path to being a mechanical engineer. I see people in my major pursuing automotive, aerospace, medicine, business, and those are just the more generalized paths. In my experiences (joining clubs, talking to people, reflecting on what I enjoy), I've learned there's more of my mechanical engineering identity that I don't know yet. I'm currently exploring options in renewable energy, autonomous vehicles, data science, haptics, and even animation. Just like my Turkish-American identity, what I end up pursuing, I hope, will be my choice.

Discussion
The engineering identity model encompasses the components of recognition, competency/performance, and interest [2]. Recognition is the idea that others, particularly in the engineering/science community, sees the individual and identifies them as an engineer; Performance/competency is the level of one's confidence in their engineering abilities; Interest encompasses the desire to think and do well in engineering. The temporary ethnic disconnect (further referred to as TED) discussed in literature about 2nd-generation Turkish-Americans encompasses the conscious decision made by young adults where they either choose to further assimilate into American culture or maintain their Turkish culture (generally by language or traditions). I identified in making this conscious decision after beginning my engineering education and TED is further discussed in the scope of individual choice in my identity development. Performance/competency is the level of one's confidence in their engineering abilities. I apply the engineering identity model to investigate my engineering and Turkish-American identity. The components of recognition, interest, and competency/performance play a key role in understanding how identity development can evolve over time. Both my engineering and Turkish-American identity are discussed in tandem with each other because they coexist for who I am as one of those identities does not exist without the other.

1. Recognition
I've associated recognition to my relationships because I've grown to be more conscious of who I want to spend my time within university. It's not important to me if people mispronounce my name because I've grown tired of correcting people for whom it's not going to make a difference, but I do appreciate it when it is pronounced correctly. How I see myself as an engineer is not impacted by recruiters or professors that don't know my name much less recognize my face because of face masks. I care about the relationships where I feel my personal identities are recognized, because the distinction of not feeling recognized induces an emotional disconnect. Perhaps more of the negative recognition (negative being lack of recognition) may appear more frequently in Turkish spaces based on past experiences of feeling like a fraud in my social interactions, but based on the sixth months of journaling at least, Turks have shared contrasting views in the extent they recognize me as Turkish. In considering my engineering identity, it's significant to note that the relationships I have outside of my family and exclusive from my Turkish identity overwhelmingly consists of other engineers (and STEM students in

general). I do enjoy studying culture and languages, but given my university focus in mechanical engineering, especially at a predominantly engineering school, I've found my closest relationships to be with other engineers (and generally other STEM students) as they have recognized me to have similar professional pursuits.

Perseverance has shaped how I react to the recognition I receive. The social recognition I receive has consistently been negotiated in different phases of my life. For example, the social construct of race, a form of social classification using perceived notions of race, has changed over time in the U.S. In moments where I struggle with my engineering work or with understanding a conversation in Turkish, it's difficult to not question why I'm putting myself through the struggle. However, I have received positive external validation in my efforts, which helps to persevere in those moments of struggle.

Conflict in recognition encompasses the complexity of identity. I described my friend group as a "mirror of hybrid identities" before I read Dr. Tatum's *Why are all the Black kids sitting together in the cafeteria? [12, pp. 99]* where she interestingly discusses social identity through the metaphor of a mirror. One example is answering the question as to why Black youths, in contrast to their White counterparts, thought of themselves in terms of race: "Because that is how the rest of the world thinks of them" [12, pp. 133], she wrote. Another example is answering the question, "Who am I?" where Dr. Tatum states, "The answer depends in large part on who the world around me says I am… As social scientist Charles Cooley pointed out long ago, other people are the mirror in which we see ourselves" [12, pp. 99]. The conflict that comes as a package deal with identity development, I've felt, stems from that mirror that reflects how people have classified me. People consistently have shared contrasting ideas as to who they think I am. My experiences in engineering so far haven't shared much disagreement, which I partially contribute to my efforts to seek out opportunities and demonstrate competency and interest, which ties into the other components of the identity model. However, it's different when considering my Turkishness. Whether it's race, language, or the fact that I haven't spent as much time in Turkey as others, recognition of who I am as Turkish varies based on who is being asked. Recognition, in my ethnic identity, is two-fold: There's how others see me (the reflection in the mirror molded by the rest of the world), which includes more disagreement, and there's how I recognize myself, as discussed through self-concept. The internal and external components demonstrate the complexity that is human culture when they are different. However, given the inevitable changes over time, I can predict the external component will continue to vary, but I have control in my internal recognition. The control in choosing to develop my language fluency is an example of the individual agency of choice, especially in the TED period of 2nd-generation Turkish-Americans. I've always been recognized as Turkish growing up in West Virginia and going to high school in Tennessee. Going to university with a large student population removed that recognition because I was no longer the only one (or at least one of at most three). First, I was the most 'Turkish' out of everyone, then suddenly, I was one of the least 'Turkish', or at least half 'American' and half 'Turkish'. How I identified myself as Turkish became more relevant and exceeded how others identified me.

2. Competency/Performance

Understanding how relationships apply to the competency/performance component is unique. Unlike my engineering coursework, I don't get graded and evaluated in skills I may present in my relationships. The idea of competency/performance is that its influence on identity is based on the confidence in one's abilities. I interpret this level of competency with Judith Butler's gender performativity theory: She discusses gender as "the act that one does, the act that one performs is, in a sense, an act that's been going on before one arrived on the scene" [23]. In expanding on her work from gender identity, the idea that there's a role to play also applies to my engineering and ethnic identity. This isn't to say I don't have other roles in my life, such as who I am as a woman or an athlete. However, the role I feel the most tension and struggle with is in who I am as a Turkish-American. The use of my engineering identity to help me understand my Turkish identity is because those are the two, I feel, that I prioritize the most in my life, the third perhaps being my gender identity of a woman. However, the extent of how I define my gender identity is largely reflected in seeing myself as a woman in mechanical engineering. This is because I am consistently reminded of the gender ratio in mechanical engineering in my classes and on social media. In my initial summary of Godwin's engineering identity development model, I shared Godwin's discussion in which particular social contexts can influence which identity (or identities) of an individual becomes more salient as "the individual attaches to the context of a social and cultural role" [2, pp. 2]. These "roles" appear in my relationships: The confidence I've felt in different spaces with different people is based on the role I feel I'm playing. In a theatrical sense, my struggle with language in Turkish spaces is equivalent to forgetting my lines in my performance, and greatly negatively impacts my confidence. Feelings of being a fraud at events enriched with Turkish culture additionally contributes to the lack of competency I associate with myself as I feel I'm not up to the expectation of the quality performance required. The performance applies to perseverance and conflict in the sense that I'm continuing to exist in spaces I've struggled in. When people may disagree with my role, it's my conscious decision to continue (correlating to the TED period in which 2nd-generaiton Turkish Americans make the conscious decisions to be more proficient in their Turkish heritage). When people have validated my efforts in speaking Turkish, even validated my work in achievement through encouragement or recognition, it translates to the approval of my performance and acceptance in those spaces. In the context of engineering, my performance has been strengthened by the social recognition of being an engineering student through my relationships in study groups, with professors, and with people in industry. It's a role I feel very confident in as I exhibit, for lack of a better word, the act of an engineer based on my interests.

3. Interest

The last component being interest is connected to, by my definition, the desire to learn to embrace my role of being an engineer and a Turkish-American. In engineering, that meant discovering what aspects of engineering I enjoy learning about and think about daily. For example, out of my courses so far, what I've enjoyed the most is learning basic motion of mechanical systems, learning how engineers work in animation, working in the machine shop, and developing my programming skills. To further demonstrate the idea of inherent interest, I want to explain an experiment my sister tried with me to explore the connection of human desires with commodities in contrast to the idea that people may view materialistic desires with

negative connotations. She asked me what current product I am interested in buying without considering the cost. My response? Legos (frankly, I don't think I'll be the only engineer with that response). After further questions, my sister came to the interpretation that my current desire to purchase Legos is associated with my desire to have fun and engaging experiences with engineering (this conversation occurred after a difficult week with classes). This experiment demonstrated a genuine inherent interest in engineering. With my Turkish-American identity, navigating TED involves a greater interest in improving my language fluency because of my sense of responsibility in holding onto my Turkish culture in how I choose to define it. My twin sister, for example, could define her responsibility differently and to a different extent. For me, I'm not actively thinking in Turkish, trying to work on my fluency or converting all my devices from English to Turkish, but navigating my TED means noticing differences in how I interact in Turkish spaces. In the past year, the differences have been the choice to speak more Turkish with my parents and attempting to go back to Turkey more often, and these choices also happen to be reflected in my sister. Ultimately, my relationships are developed from my interests such that both my Turkish-American and engineering identities are supported (or even encouraged to develop because of conflict).

The themes of relationships, perseverance, conflict, and individual agency overlap in the component of interest for identity development: Without my interest in developing either of my identities, as an engineering student or Turkish-American, none of those themes would exist. 2nd-generation Turkish-American immigrants are observed to share my distinct interest in developing the Turkish side of their hybrid identity. That distinct interest, in my case, developed from falling short of my expectations of being able to connect to other Turks on campus because of how clearly I struggled with the language. It became my own desire to improve my language fluency, which when considering the temporary ethnic disconnect, was the conscious decision where I wanted to grow further in my Turkish identity rather than assimilate further into American culture. The same extent of desire goes for my engineering identity. I have the privilege to pursue a higher education of my choice and have the financial means to do so. Because of this, I have the pleasure to choose mechanical engineering, and I'm supported by my family and friends such that I'm recognized as an engineer-in-training. I make the conscious decision to pursue the work I do every day in my major, but it should be recognized that that conscious decision is supported financially giving me the agency to continue.

Conclusion
In reflecting upon my experiences through my mechanical engineering education and my pursuit of strengthening my "Turkishness", I'm recognizing how facets of identity, regardless of what kind of identity, can interact with each other and support understanding in areas of conflict or struggle. Navigating my engineering identity has provided more strength in recognizing that my Turkishness can be decided upon by myself, however I choose. How I see myself as Turkish may reach conflict if others see me differently in the mirror that is the world. In the context of my temporary ethnic disconnect, making the conscious decision to grow in my language fluency or however else I feel close to my family in Turkey is a choice I choose, same as I choose how to define myself as an engineer.

It's important to recognize that I put a lot of weight and pressure on myself to feel like certain ethnic spaces would be perfect for me. In doing so, I have felt like a fraud as I didn't belong because I struggled so much with language, which has created conflict between how I see myself in comparison to how other Turks identified me. However, receiving positive external validation, such as from my parents and strangers such as Turkish taxicab drivers, improved my sense of belonging in university as it improved my understanding of how complex identity can be: Humans naturally classify other humans around them to make sense of the world. How others choose to classify me almost feels like it loses its power when so many people have contradicting classifications for myself as to whether I'm white or not, American or not, Turkish or not, and what kind of engineering I am versus what kind I'm not.

To answer the overarching question of how a 2nd-generation Turkish-American woman engineering student navigates her ethnic and engineering identities within the first two years of college, I'll address the subtopics first. My first subtopic question is

> How do we walk the line between the different cultures we are a part of? Is
> there even a line to walk?

My answer, based on my experiences and self-reflection over the course of this paper, is that the line may be a distinction of the space we're in (e.g., engineering spaces, Turkish spaces, etc.), but it does not dictate the presence of one sole identity. Rather, the development of all our own identities, especially the ones we deem most important for ourselves, should be encouraged to pursue to the extent of our own inherent interest. Ultimately, social recognition does impact the level we may feel we belong as it serves to externally validate our efforts in what we pursue. This recognition begins to answer my second subtopic question:

> Are there external stimuli that bring out more of one cultural identity versus another, or do
> we, as humans, have more agency in the worlds we walk in?

Frankly, disagreement is inevitable between how we see ourselves compared to how the world chooses to see us over the course of our lifetime. In my experiences, I've struggled feeling like a fraud in both Turkish and engineering spaces, but I continue because of the growth I've recognized in my competency (Turkish fluency, improved understanding of engineering concepts, stronger inherent interest in continual development). The mirror as discussed by Dr. Tatum [12, pp. 99] such that our identities can be influenced by how the world sees us is important to recognize when we struggle with the identities we may so strongly want to hold on to. In my experience, I've found greater freedom in redefining my identities as to how they fit me.

Over time, hearing other stories with their identities can help us make sense of our own sense of self. While I felt like an outsider with Turks, I bonded greatly with other 2nd-generation immigrants. That doesn't mean to say I only bonded with 2nd-generation immigrants, because I found great friendships in my engineering community and in serendipitous situations of life.

Perhaps our sense of belonging is never going to be black and white, for life is too complex for that. What I've learned as I grow in my engineering studies and in my pursuit of "Turkishness" is that we, as humans, get some choice in how we see ourselves. Recognizing and getting more comfortable with the idea that there may very well be disagreement with how others see me, I feel more comfortable in being apathetic towards needing to identify myself as one thing or another. We may have our different identities appear to be more noticeable in different spaces, but as Yumi Tomsha [21] said, we embody different layers of identities that belong together and shape the uniqueness of every individual. Ultimately, the line we walk between different cultures may not even be a line at all, but rather it's along a reflection of the choices we make.

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