



**Selected Papers of #AoIR2025:
The 26th Annual Conference of the
Association of Internet Researchers**
Niterói, Brazil / 15 – 18 Oct 2025

GUJARATI AUNTIES ON THE INTEGRATED CIRCUIT: INTERNET INFRASTRUCTURES AS AN IMMIGRANT CIRCUIT

Kinjal Dave
University of Pennsylvania

Introduction

Infrastructures are path dependent. The evolution of the internet at present rely on previously installed historical and analog infrastructures, including highways (Saxenian 1996) and telecommunication lines (Ensmenger 2008). However, the experiences of immigrant communities show that labor pools are also human infrastructures required for the expansion of tech companies (Nakamura 2014, Hossfield 2019, Cowie 2001). Visa restrictions, which operate as a mechanism of racial capitalism (Kelley 2017, Melamed 2015), create an additional layer of path dependency, since migration patterns initially were restricted to highly educated Asians, then later allowed lower-class relatives to migrate on family reunification visas. As part of a larger dissertation project tracing the experience of entrepreneurial identity and migration, this essay examines the overlap between technical and cultural path dependencies to tell the story of one Asian-American diaspora. This project examines the role of one ethno-linguistic network in the domestic manufacturing space – Gujarati-Indians in New Jersey who owned, operated, or worked in electronics factories. Surfacing lessons learned from the legacies of globalization and deindustrialization through immigrant experiences, this project emphasizes the unique cultural relationships built through both professional and working class technical labors among Gujaratis. I argue recounting a near history of immigrant technical work forces us to ask new questions about how the social reproduction of diasporic enclaves is necessary to produce technical laborers in the United States.

Data & Method

Engaging in a grounded theory (Timmermans and Tavory, 2012) approach, I draw on oral histories with women who worked in chip, circuit board, and microelectronics parts manufacturing to surface how performances of material labors shape the family and the factory, emphasizing the sociality created through and by hardware manufacture. I engaged in fifteen oral histories using a semi-structured questionnaire protocol which asked women to reflect on their migration journey, the different forms of technical work

Suggested Citation (APA): Dave, KI. (2025, October). Gujarati Aunties On The Integrated Circuit: Internet Infrastructures As An Immigrant Circuit. Paper presented at AoIR2025: The 26th Annual Conference of the Association of Internet Researchers. Niterói, Brazil: AoIR. Retrieved from <http://spir.aoir.org>.

they had engaged in, and balancing family and work life. Interviews ranged from thirty minutes to seven hours completed over the multiple days depending on the participant's interest. Engaging ethnographically over the course of six months, communications with participants often included meals, spending time with their children, and visiting their houses of worship. Interviews were conducted bi-lingually in Gujarati and English, transcribed, and coded for shared themes. From this data set, I engage in two ethnographic vignettes to demonstrate the co-construction of the physical infrastructure of the internet with socio-cultural reproduction of the diaspora (Hall 2015). To integrate ethnographic findings with internet infrastructure, I trace the physical life of technical work and its relationship to the communities who built it. Knowledge gaps in oral history were filled with supplemental archival research from publicly available materials.

Integrated Circuits of Technology, Integrated Circuits of Migration

I tell the story of Harsha, a woman who began her lifelong career of factory work by soldering at a small defense subcontracting company in central New Jersey. Harsha left India in 1980, and after a brief stint in the United Kingdom where her and her newlywed husband found it difficult to settle, she found a job at MIL Hardware Industries. Though she only attended some high school, her husband was an engineer by training. He first found a job in this factory, not as an engineer, but on the assembly line. She found work in soldering and became well known in the factory for her clean linework. While Harsha was uncertain what would be built by the printed circuit boards she was soldering, she mentioned they were the size of entire rooms. By tracing Harsha's employment history and publicly available business records, I came to understand that she was building equipment for the AT&T Submarine Unit recently purchased by Tyco Electronics, which would use various machinery to lay and maintain transatlantic fiber optic cable. Harsha recounts how her uncle sponsored one hundred people from his village to the United States, and how she helped dozens of women pass job interviews with limited English by teaching them how to soldier in her kitchen, thereby closing the gap between work that is historically understood as technical as being separate from work that is considered domestic. Following Harsha to her house of worship, I spent time at a large Hindu temple in a nearby New Jersey town. I came to learn how many of its attendees worked at tech companies and witnessed a parking lot full of Tesla vehicles. Through archival research, I was able to learn that the seed money for founding this temple originally came from a public speaking professional development group convened by an early group of Indian engineers at AT&T Bell Labs.

Implications

While other scholarship has examined the role of Indians in software environments (Amrute 2016, Mankekar 2016), few have focused on their relationship to internet hardware (Subramanian 2019, Sharma 2015). Path dependent migration practices through family reunification visas mirror the path dependencies of technological infrastructure, as large companies remain large employers in urban locales. I argue recounting a near history of immigrant technical work forces us to ask new questions about how the social reproduction of diasporic enclaves is necessary to produce technical laborers in the United States.

Works Cited

- Amrute, S. (2016). *Encoding race, encoding class: Indian IT workers in Berlin*. Duke University Press.
- Mankekar, P., & Gupta, A. (2016). *Intimate encounters: Affective labor in call centers. positions: east asia cultures critique*, 24(1), 17-43.
- Saxenian, A. (1996). *Regional advantage: Culture and competition in Silicon Valley and route 128, with a new preface by the author*. Harvard University Press.
- Ensmenger, N. (2018). The environmental history of computing. *Technology and culture*, 59(4), S7-S33.
- Nakamura, L. (2014). Indigenous circuits: Navajo women and the racialization of early electronic manufacture. *American Quarterly*, 66(4), 919-941.
- Hossfeld, K. J. (2019). Hiring immigrant women: Silicon Valley's "simple formula". In *Race and ethnic conflict* (pp. 162-179). Routledge.
- Cowie, J. (2001). *Capital moves: RCA's seventy-year quest for cheap labor*. The New Press.
- Kelley, R. D. (2017). What did Cedric Robinson mean by racial capitalism? *Boston Review*. Retrieved October, 18, 2021.
- Melamed, J. (2015). Racial capitalism. *Critical ethnic studies*, 1(1), 76-85.
- Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological theory*, 30(3), 167-186.
- Hall, S. (2015). Cultural Identity and Diaspora. In *Colonial discourse and post-colonial theory* (pp. 392-403). Routledge.
- Subramanian, A. (2019). *The caste of merit: Engineering education in India*. Harvard University Press.
- Sharma, D. C. (2015). *The outsourcer: The story of India's IT revolution*. MIT Press.