NICHOLAS TAPP - HUGHES

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Full Stack Engineer focused on building web, AI/ML, and data applications that meet stakeholder needs.

EXPERIENCE

Software Developer *Epic Systems Corp., 2023–2025*

- Developed new system for configuring how findings and recommendations from screenings appear in downstream workflows.
- Improved performance and UX of applications by migrating from Visual Basic to .NET and React.
- Helped 70% of lung cancer cases at The Christ Hospital achieve earlier staging by contributing to LLM-driven functionality to pull out key findings from radiology reports.
- Fixed bug reports weekly across the client, server, and databases.
- Shipped code to 500+ healthcare systems and left the organization on good terms.

Graduate Student Researcher *UNC Computer Science, Fall 2021–Spring 2023*

- Improved autism classification accuracy on 3D hippocampus dataset by developing new methods for extracting interpretable statistical features of 3D objects.
- Boosted research productivity of myself and colleagues by maintaining our Python repo, developing scripts for orchestrating experimentation, cleaning datasets, and advocating for visualization tools.
- Published scientific article in the Journal of Mathematical Vision and Imaging in 2025.

Graduate Research Assistant *UNC Gillings School of Public Health, Fall 2021–2025*

- Improved policymaker's understanding of smoking behavior in the US adult population by building a microsimulation model that predicts year-over-year smoking behavior at the individual level.
- Accelerated the project team's productivity and synchronization by maintaining the codebase, building sensical data pipelines, sharing regular results, recommending technologies, and onboarding new people.
- Published in PLoS One, Nicotine and Tobacco, and Society for Research on Nicotine and Tobacco.

Software Engineering R&D Intern *Sila Nanotechnologies Inc., Summer 2022*

- Improved physcial measurement accuracy in chemical R&D processes by delevoping improvements to a proprietary computer vision pipeline.
- Advocated for best programming practices, wrote documentation, recommended methodology, and advised maintenance and future development strategy.

PROJECTS & SYSTEMS BUILT

Nick Tapp-Hughes's Blog

- A personal website and blog built using Vite/React and hosted on AWS with Cloudflare DNS services. The posts range from highly technical to casually philosophical, with more underway. (link)

Smoking Behavior Microsimulation Model

- A 2nd order Markov chain multinomial logistic regression model simulating the smoking behavior of individuals over the course of their lifetimes, scaled up to the entire US adult population. Accompanying logic for orchestrating experiments and visualizing the results. Developed while working as a research assistant at the UNC Gillings School of Public Health. (link)

PUBLICATIONS

- Stephen M. Pizer, Zhiyuan Liu, Junjie Zhao, Nicholas Tapp-Hughes, James Damon, Miaomiao Zhang, JS Marron, Mohsen Taheri, Jared Vicory, "Interior Object Geometry via Fitted Frames," Available: Springer, https://rdcu.be/eFX0G.
- Nicholas Tapp Hughes, "A 3d U-net for Segmentation of Subcortical Structures In MR Images of 12 and 24 Month-old Infants," Available: Carolina Digital Repository, https://cdr.lib.unc.edu/concern/honors_theses/4f16c8286.

SKILLS

Technologies: Python, git, Linux, Docker, AWS, C, C++, C#, Rust, SQL, MongoDB, Typescript, React, LaTeX

Areas of expertise: Machine Learning and AI, Data Analysis and Processing, Full-Stack Web Development

EDUCATION

University of North Carolina at Chapel Hill

B.S. Applied Mathematics, B.S. Computer Science — *August 2017 – May 2021*

- Cumulative GPA: 3.92/4, Math GPA: 3.87/4, CS GPA: 3.97/4

M.S. Computer Science — *August 2021–May 2023*