Pingfan Hu, Ph.D.

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Research data scientist. Builds choice models that predict customer preferences in energy, from electric vehicles to the power grid. Designs surveys and simulations. Writes code in R, Python, SQL and Rust. Australian permanent resident.

EDUCATION

George Washington University - *Ph.D., Systems Engineering*, 2026 (GPA 4.0)
University of Sydney - *M.P.E., Mechanical Engineering*, 2018
Pennsylvania State University - *B.S., Industrial Engineering*, 2015

SKILLS

Research Methods: Discrete Choice, Logit Modeling, Statistical Modeling, Econometrics, Survey Design, A/B Testing, Simulation, Optimization
Data Science: tidyverse, ggplot, PostgreSQL
Programming: R, Python, Rust, Swift, SQL, JavaScript, Shell, Git
Generative AI: Claude Code, Codex, LLM Workflows, Skills, MCP, Hooks
Web Development: Quarto, Shiny, HTML, CSS, Docker, Google Cloud
App Development: GPUI, SwiftUI, UI/UX Design

RESEARCH PROJECTS

EV Smart Charging - *Sloan-Funded Project of GWU, UC Davis & UC Irvine* 2023 - 2026

- Designed a national choice experiment with 1,356 EV owners. Managed its recruitment budget across Meta and Dynata, with A/B tests to find the most cost-effective approach.
- Built mixed logit models of customer enrollment: EV owners value flexibility and recurring payments most. Used the models to predict uptake for program designs not yet offered.
- Simulated 10,000 EVs against CAISO and NYISO load in 55 time-of-use and enrollment scenarios. Managed charging cut CAISO peaks by up to 5.6 GW. Moderate enrollment, not maximum, was the most cost-effective.
- Presented findings to stakeholders at Southern California Edison, PG&E, National Grid, and the Sloan Foundation.
- First-author papers in *Environmental Research Letters* and *IEEE VPPC*, a third in revision. Talks at TRB and ASTR.

surveydown - *Open-Source Survey Platform of the Helveston Lab at GWU* 2024 - 2026

- Lead developer of an open-source R package for programmable, reproducible surveys. Built on Quarto, Shiny, and PostgreSQL; 180+ GitHub stars and 11,000+ CRAN downloads.
- Built sdstudio, its Shiny GUI (2,500+ CRAN downloads). Also wrote TidyViz, a Python package for survey data.
- First-author paper in *PLOS ONE*; 2nd prize at the GW Open Source Awards; profiled by GW Engineering.
- Communicated the platform in talks at posit::conf, US-RSE, and GW OSCON 2025 and 2026.

WORK EXPERIENCE

Alkaline Software - *Co-Founder & Principal Engineer* Remote 2026 - Present

- Lead developer of Emaki, the studio's agentic development environment; deployed 27 releases.
- Built a reusable Rust + GPUI app template for macOS, Windows, and Linux. Three more apps now build on it.
- Created the studio's design system (color, type, icons, motion) and the UI and UX of every app.

George Washington University - *Graduate Research Assistant* DC, USA 2023 - 2026

- Teaching assistant for two R analytics courses of 40 students; presented lectures and mentored every project team.
- Built and evaluated Claude Code skills, MCP servers, and hooks for reproducibility; taught in a GW AI workshop.
- Student research specialist, FEWS Lab (May - Aug 2023): modeled the Mid-Atlantic freight transportation network.

Harsco Rail - *Software Engineer* SC, USA & Beijing, China 2021 - 2022

- Led C++ and CAN bus software for rail maintenance machines across the USA and China; delivered 25 releases.
- Stakeholder liaison between customers, US management, and the China team; ran on-site testing.

GE Appliances - *Project Engineer* Qingdao, China 2019 - 2020

- Edison Engineering Development Program: took 500+ components for 9 washer models into production.

Kurtz Ersa GmbH - *Assistant Process Engineer (Intern)* Wertheim, Germany 2017

- Ran a 2-month Design of Experiments on a new soldering technology across 200 PCB samples.