

# Pingfan Hu

Engineering Management and Systems Engineering  
The George Washington University  
4581 Science & Engineering Hall  
800 22nd St NW, Washington, DC 20052, USA  
☎ +1 (202) 468-1083  
✉ [pingfan0727@gmail.com](mailto:pingfan0727@gmail.com)  
[www.pingfanhu.com](http://www.pingfanhu.com)



## EDUCATION

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- 2026 **George Washington University**, Washington, D.C. Ph.D. Systems Engineering  
Proposal: *EV Smart Charging Adoption, Grid Peak-Shaving, & the surveydown Survey Platform*  
Doctoral Committee: *John Paul Helveston, Caitlin Grady, Johan René van Dorp, & Eric Hittinger*
- 2018 **University of Sydney**, Sydney, NSW, Australia M.P.E. Mechanical Engineering
- 2015 **Pennsylvania State University**, State College, PA B.S. Industrial Engineering


## RESEARCH INTERESTS

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- **Open-source Survey Platform:** Development of `surveydown`, an open-source, feature-packed  package for programmable and reproducible surveys, combining a Quarto UI, a Shiny web framework, and a PostgreSQL backend.
- **Companion Survey Tool:** Development of `sdstudio`, a companion  package of `surveydown` to provide a user-friendly interface as Shiny application for designing surveys and managing databases.
- **Electric Vehicle Smart Charging Adoption:** Survey fielding and modeling on electric vehicle owners' preferences and sensitivities of smart charging programs, including supplier-managed charging and vehicle-to-grid.
- **Grid Supply Curve Peak-Shaving:** Simulation and analysis of nation-wide grid supply curve impacts from electric vehicle charging behaviors, and quantification of peak-shaving with smart charging application.

## HONORS & AWARDS

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- **2025:** Profiled by GW Engineering for contributing to the `surveydown` platform.
- **2024:** 2nd Prize in GW's 2024 Student Open Source Awards for the `surveydown`  package.

## PUBLICATIONS

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ORCID: [0009-0001-4877-4844](https://orcid.org/0009-0001-4877-4844) | [Google Scholar Profile](#)

### A. JOURNAL ARTICLES

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1. **Hu, P.**, Bunea, B., & Helveston, J. P. (2025). "surveydown: An open-source, markdown-based platform for programmable and reproducible surveys" *PLOS ONE*. 20(8). DOI: [10.1371/journal.pone.0331002](https://doi.org/10.1371/journal.pone.0331002)
2. **Hu, P.**, Tarroja, B., Dean, M., Forrest, K., Hittinger, E., Jenn, A., & Helveston, J. P. (2025). "Measuring electric vehicle owners' willingness to participate in smart charging programs". *Environmental Research Letters*. DOI: [10.1088/1748-9326/ae2597](https://doi.org/10.1088/1748-9326/ae2597)

## B. CONFERENCE PROCEEDINGS

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1. **Hu, P.**, Tarroja, B., Dean, M., Forrest, K., Hittinger, E., Jenn, A., & Helveston, J. P. (2025). "Measuring consumer willingness to enroll in battery electric vehicle smart charging programs" (Paper No. TRBAM-25-01317). Paper accepted for presentation at the Transportation Research Board 104th Annual Meeting, Washington, D.C.
2. **Hu, P.**, Tarroja, B., Dean, M., Forrest, K., Hittinger, E., Jenn, A., & Helveston, J. P. (2024). "Measuring consumer willingness to enroll in battery electric vehicle smart charging programs" *2024 IEEE Vehicle Power and Propulsion Conference (VPPC)*. 1–17. DOI: [10.1109/VPPC63154.2024.10755299](https://doi.org/10.1109/VPPC63154.2024.10755299)



## C. WORKING PAPERS & PAPERS UNDER REVIEW

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1. **Hu, P.**, Bunea, B., & Helveston, J. P. (2025). "sdstudio: A Companion Package for Designing and Managing surveydown Surveys." *Working paper*.
2. **Hu, P.**, Tarroja, B., Dean, M., Forrest, K., Hittinger, E., Jenn, A., & Helveston, J. P. (2025). "Quantifying the peak-shaving potential of electric vehicle supplier-managed charging." *Working paper*.

## D. SOFTWARE

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1. **Hu, P.** (aut,cre,cph) (2025) "TidyViz: A Python package for tidying and visualizing survey data."
2. **Hu, P.** (aut,cre,cph) (2025) "MiniCalendar: A free and open-source mini menu bar calendar" macOS application.
3. **Hu, P.** (aut,cre,cph), Helveston, J. P. (aut,cre), Bogdan Bunea (aut,cre) (2025) "sdstudio: Companion Application for the surveydown Survey Platform"  package.
4. Helveston, J. P. (aut,cre,cph), **Hu, P.** (aut,cre), Bogdan Bunea (aut,cre) (2024) "surveydown: Markdown-Based Surveys Using Quarto Shiny Documents"  package.

## PRESENTATIONS

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### A. CONFERENCES

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1. "surveydown: An Open-Source, Markdown-Based Platform for Reproducible and Programmable Surveys". Quant UX Con 2025. Virtual. Nov 05, 2025.
2. "surveydown: An open-source platform for programmable, markdown-based surveys". U.S. Research Software Engineer Conference 2025. Philadelphia, PA. Oct 06, 2025.
3. "surveydown: A Markdown-Based Platform for Interactive and Reproducible Surveys Using Quarto and Shiny", with John Paul Helveston. Posit Conference 2025 — The  & Python Data Science Conference. Atlanta, GA. Sep 17, 2025.
4. "Grid-Integration of Electric Vehicles: Consumer Preferences for Supplier Managed Charging". Bridging Transportation Researchers 7. Virtual. Aug 06, 2025.
5. "surveydown: An Open-Source, Markdown-Based Platform for Interactive and Reproducible Surveys". GW Open Source Conference 2025. Washington, DC. Mar 24, 2025.
6. "Measuring Consumer Willingness to Enroll in Battery Electric Vehicle Smart Charging Programs", with Brian Tarroja Matthew Dean, Kate Forrest, Eric Hittinger, Alan Jenn, and John Paul Helveston. 2024 IEEE Vehicle Power and Propulsion Conference (VPPC). Washington, DC. Oct 03, 2024.

## B. POSTERS

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1. “surveydown: An Open-Source, Markdown-Based Survey Platform”. GW 2025 R&D and Senior Design Showcase, The George Washington University. Washington, D.C. Apr 25, 2025.
2. “Electric Vehicle Owner Preferences for Smart Charging”. GW 2025 R&D and Senior Design Showcase, The George Washington University. Washington, D.C. Apr 25, 2025.
3. “The BEV Smart Charging Adoption Project”. 2025 Transportation Research Board 104th Annual Meeting. Washington, D.C. Jan 06, 2025.

## TEACHING

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### A. TEACHING ASSISTANTSHIPS

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- Fall 2025 - EMSE 4572 / 6572: Exploratory Data Analysis
- Spring 2025 - EMSE 4571: Programming for Analytics

### B. WORKSHOPS

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- “surveydown: An Open-Source, Markdown-Based Platform for Reproducible and Programmable Surveys”, with John Paul Helveston. Quant UX Con 2025 Workshop Session. Virtual. Nov 06, 2025. [jhelvy.github.io/2025-qux-surveydown-workshop/](https://jhelvy.github.io/2025-qux-surveydown-workshop/).
- “surveydown: An Open-Source, Markdown-Based Platform for Programmable and Reproducible Surveys”, with John Paul Helveston. Workshops for Ukraine. Virtual. May 29, 2025. [jhelvy.github.io/2025-surveydown-workshop](https://jhelvy.github.io/2025-surveydown-workshop).

## ORGANIZATION MEMBERSHIPS

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- Institute of Electrical and Electronics Engineers (IEEE)
- Transportation Research Board (TRB)

## INDUSTRY EXPERIENCES

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- Software Engineer at *Harsco Rail*. Managed and delivered software for Undercutter and Grinder projects, demonstrating expertise in programming and project management skills. SC, USA & Beijing, China (2021 - 2022).
- Project Engineer at *GE Appliances*. Participated in GE’s Edison Engineering Development Program with various appliance projects, showing expertise in PLM management and designs. Qingdao, China (2019 - 2020).
- Assistant Process Engineer (Intern) at *Kurtz Ersä GmbH*. Executed a DoE for new soldering technology, and featured as lead actor in Ersä’s first Asian market promotion video on YouTube. Wertheim, Germany (Jan. - Mar. 2017).

## SKILLS

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- **Languages:** English (*Proficient*), Chinese (*Native*).
- **Programming Languages:** R, Python, C++, SQL, tidyverse, ggplot, Shell, JavaScript
- **Web Development:** Quarto, R Shiny, Git, GitHub, Netlify, HTML, CSS
- **Database:** PostgreSQL, Excel, Minitab, Tableau, Power BI
- **Data Science:** Statistics, Data ETL, Data Viz, Data Analysis, Survey Design, Conjoint Analysis, Discrete Choice Modeling, Logit Modeling, Monte Carlo Simulation
- **AI & LLM:** Agentic Engineering, Machine Learning, LLM Deployment