



## ECCENTRIC COG

Trey Roady, PhD CHFP

Human Factors Engineer

UX Researcher

Austin, TX



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[0000-0002-0945-1321](https://orcid.org/0000-0002-0945-1321)

## Skills

### UX

Usability Testing, Surveys, Qualtrics, Personas, Heuristics, Service Design, Task Analysis, Wireframes, Eye Tracking, Figma, UserInterviews.com, JTBD, Context. Inquiry, Multi-Modal (Audio / Haptic)

### Human Factors

Info Processing, AI Teaming, Anthropometry, Accessibility, Biomechanics, Validation, Cognitive Science, Eng. Management, Root Cause Experimental Design, Sociotechnical Systems, FDA Summatives

### Data Science:

Advanced R (tidyverse), C/C++, Python, Matlab, VBA, Data Viz (ggplot), GL Mixed Models, Market Segmentation, Time Series, ANOVA, Ops Research, Bayesian Models, PCA, Quality Control

### Professional:

Public Speaking, Regulatory Influence, Technical Writing, Mentorship, A/V Editing

## Summary

I'm a mixed-methods systems researcher who designs reliable, human-centered experiences. (Mostly, I explain people to engineers.)

My greatest ambition is to advance the field of human factors, and my focus on positive-impact projects even took me to Australia to end impaired driving!

I'm seeking remote or hybrid research roles in complex domains, with a chance to build an effective team. I thrive on varied work that requires an adaptable approach. My experience is primarily in driving automation, human-AI interaction, aviation, AR interfaces, and industrial manufacturing but am keen to cross-apply lessons.

## Education

**PhD:** Interdisciplinary Engineering, Texas A&M;

**Focus:** Human Factors & Cognitive Systems

**BS:** Industrial & Systems Engineering, Texas A&M; **Minor:** Psychology

## Professional Experience

**Principal User Researcher (UX consulting)**, Sunflower UX, Austin, TX Mar. 2024 - Present

- Grant-writing, mentorship, and project management for public health UX

**Senior Behavioral Scientist (UX consulting)**, ChaiOne, Houston, TX Sept. 2022 - Mar. 2024

- Remote usability testing, recruiting, & surveying for corporate Gen AI and EV infrastructure.
- Improved user-reported ease of use and usefulness for a nationwide customer experience platform from bottom 40% to top 10% via usability testing and ACAG AA best-practices.

**Senior Research Scientist II (HF/UX)**, Seeing Machines, Canberra, Australia Oct. 2018 - Aug. 2022

- <sup>1</sup>For a \$3.2 billion market, developed the first industry-wide regulatory test protocol for detection of driver distraction and fatigue. Led project with rotating team of C-suite collaborators. Resulting final protocol is 85% identical to our initial proposal draft.
- Increased revenue \$2 million (AUD) dollars by conceptualizing and writing one data report identifying missed risk-reduction opportunities for existing clients.
- Human-in-the-loop AI supervision architecture and multimodal interaction design of 3rd gen. for auditable public safety in 54k vehicles, internationally, to support accurate decision-making and effective staffing scaling.
- Feature engineering for time-series and repeated measures physiological data to determine usefulness for production or research.
- Contributed to long-term innovation strategy and product roadmap regarding tech feasibility
- Psychometrics and subjective-rating scale design for AI training truth state.

**Post-Doctoral Researcher**, ACE Lab May - Aug. 2018

**Research Assistant**, HF&CS Lab, .5 FTE May 2014 - May 2018

- Supported FAA technology standards for cognitive workload & wearables design.
- Developed systems-oriented mobile medical device design framework, SEIPS-m, to identify common socio-technical failure modes.

**Lead Teaching Assistant**, College of Engineering, .5 FTE Aug. 2012 - May 2018

- Primary technical instructor for 26 Senior Design groups in industry consultation. Clients included Fortune 500, NASA, Houston Foodbank, and major hospital systems (2 sem.)

**Technician II**, Human Factors & Cognitive Systems Lab, .5 FTE Oct. 2011 - Aug. 2012

## Honors

**<sup>2</sup>Best Paper:** Road User Measurement, Transportation Research Board Jan. 2023

**Outstanding Student Member:** Texas A&M HFES Apr. 2017

**Winner & Best Presentation:** UX Guerilla Design Challenge, HFES Sept. 2016

**Student Observer:** HFES Executive Council Meeting Apr. 2015

**<sup>3</sup>Best Student Paper:** HFES Perception & Performance TG Oct. 2013



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## Organizations

- UX in ATX**, Panel Organizer 2023
- Human Factors and Ergonomics Society**, Associate Member, Reviewer 2018 - Present
- Student Member 2011 - 2018
- Houston Chapter**, Student Member 2013 - 2018
- Texas A&M University Chapter**, President 2014 - 2016
- Founded chapter, which received Silver award status first two years; now Gold
- Cepheid Variable**, Member 2007 - Present
- Head Security Officer**, AggieCon 47 Mar. 2016
- Recruited, trained, and supervised 15 security workers for 500 guest, 3-day convention
  - Commended by attendees for professionalism and customer service of volunteer staff
- Student Development Officer** 2011 - 2012
- Record breaking recruitment and retention numbers strained facility limits
  - Managed formal mentorship program for 30 students
- Student Mentor** 2010 - 2016

## Certifications

- Board Certification in Professional Ergonomics**,
- Certified Human Factors Professional 2020 - Present
- Associate Human Factors Professional 2016 - 2020

## Publications (ORCID: [0000-0002-0945-1321](https://orcid.org/0000-0002-0945-1321))

### Book Chapters

1. <sup>1</sup>Lenné, M. G., **Roady, T.**, & Kuo, J. (2020). Driver State Monitoring for Decreased Fitness to Drive. In Regan, M.A., Fisher, D.L., Horrey, W.J., & Lee, J.D. (Eds.), *Handbook of Human Factors for Automated, Connected, and Intelligent Vehicles*. (1st ed.). CRC Press. <https://doi.org/10.1201/b21974>

### Journal Articles

1. Yang, S., Wilson, K., Shiferaw, B., **Roady, T.**, Kuo, J., and Lenné, M. (preprint). Sensor Fusion to Connect Gaze Fixation with Driving Context for Driver Attention Management. <http://dx.doi.org/10.2139/ssrn.4662108>
2. Yang, S., Wilson, K., **Roady, T.**, Kuo, J., and Lenné, M. (2022) Beyond gaze fixation: Modeling peripheral vision in relation to speed, partial automation, cognitive load, and age in highway driving. *Accident Analysis and Prevention*. [10.1016/j.aap.2022.106670](https://doi.org/10.1016/j.aap.2022.106670)
3. Yang, S., Wilson, K. M., **Roady, T.**, Kuo, J., & Lenné, M. G. (2020). Evaluating Driver Features for Cognitive Distraction Detection and Validation in Manual and Level 2 Automated Driving. *Human Factors*. [10.1177/0018720820964149](https://doi.org/10.1177/0018720820964149)
4. Wilson, K. M., Yang, S., **Roady, T.**, Kuo, J., & Lenné, M. G. (2020). Driver trust & mode confusion in an on-road study of level-2 automated vehicle technology. *Safety Science*, 130, 104845. [10.1016/j.ssci.2020.104845](https://doi.org/10.1016/j.ssci.2020.104845)
5. Tippey, K., **Roady, T.**, Rodriguez-Paras, C., Ferris, T.K., Brown, L., and Rantz, W. (2017). General Aviation Weather Alerting: The Effectiveness of Different Visual and Tactile Display Characteristics in Supporting Weather-Related Decision-Making. *International Journal of Aerospace Psychology*. [10.1080/24721840.2018.1443271](https://doi.org/10.1080/24721840.2018.1443271)



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## Publications

### Theses

1. **Roady III, W. A.** (2018). *Design and Validation of Vibrotactile Communications for Dynamic Environments* [Doctoral dissertation, Texas A & M University].
2. **Roady, T.** (2012) *An analysis of static, dynamic, and apparent motion vibrotactile stimuli.* [Undergraduate research thesis, Texas A&M University].

### Peer-Reviewed Conference Proceedings

1. <sup>2</sup>Yang, S., Wilson, K., **Roady, T.**, Kuo, J. & Lenné, M. G. (2023). Analyzing the Spotlight of Attention in Connection with Real-World Highway Environments. Transportation Research Board Annual Meeting, Washington, DC
2. Yang, S., Shiferaw, B., **Roady, T.**, Kuo, J., & Lenné, M. G. (2021). Gaze Shifting Like A Lizard in Driver Cell Phone Distraction. Proceedings of the Human Factors and Ergonomics Society 65th Annual Meeting, Baltimore, MA
3. **Roady, T.**, Wilson, K., Kuo, J., & Lenné, M. G. (2020). How Do Drivers Hold Their Phone? Age, Prevalence, & Handedness. Proceedings of the Human Factors and Ergonomics Society 59th Annual Meeting, *Virtual*, 64(1), 1254–1257. <https://doi.org/10.1177/1071181320641298>
4. Johnson, I., Whitehurst, G., Risukhin, V. N., Brown, L. J., Rantz, W., Ferris, T. K., **Roady, T.**, Rodriguez-Paras, C., Tippey, K., & Futrell, M. J. (2017). PEGASAS: Weather Technology in the Cockpit. *19th International Symposium on Aviation Psychology*, 323-328.
5. Dinakar, S., Tippey, K., **Roady, T.**, Edery, J., and Ferris, T.K. (2016). Using modern social network techniques to expand link analysis in a nuclear reactor console redesign. Proceedings of the Human Factors and Ergonomics Society 60th Annual Meeting. Washington, DC. September.
6. **Roady, T.** and Ferris, T.K. (2014). Supporting speeded navigational communication via gesture-controlled vibrotactile displays. Proceedings of the Human Factors and Ergonomics Society 58th Annual Meeting. Chicago, IL. October.
7. Tippey, K. G., Sivaraj, E., Ardoin, W., **Roady, T.**, and Ferris, T.K. (2014). Texting while driving using Google Glass: investigating the combined effects of heads-up display and hands-free input on driving safety and performance. Proceedings of the Human Factors and Ergonomics Society 58th Annual Meeting. Chicago, IL. October.
8. <sup>3</sup>**Roady, T.** and Ferris, T.K. (2013). Supporting speeded navigational communication via gesture-controlled vibrotactile displays. Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting. San Diego, CA. October.
9. **Roady, T.**, & Ferris, T. K. (2012). An Analysis of Static, Dynamic, and Saltatory Vibrotactile Stimuli to Inform the Design of Efficient Haptic Communication Systems. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 56, No. 1, pp. 2075-2079). SAGE Publications.

### Invited Talks

1. AI Panel Discussion (Sept 2023). Panelist. Business Analyst Development Day
2. UX Frontiers: Artificial Intelligence in Design. (June 2023) Panelist. UX in ATX Conference
3. Human Factors Futures (April 2023). Panelist. Houston HFES One-Day Symposium
4. Validation of Human/AI Systems. (Dec 2019). AI Futures Lecture Series. Australian Office of National Intelligence.
5. Surviving Graduate School by Protecting Your Time. (July, 2018). Louis Stokes Alliance for Minority Participation (LSAMP). Focus on time management strategies for neurodiverse graduate students.