

# INSTITUTE FOR STUDIES IN PRAGMATISM



## Charles S. Peirce Interdisciplinary Graduate Fellow 2026

### Soroush Tabadkani Avval

PhD candidate, Computer Science,  
Edward E. Whitacre Jr. College of Engineering

The Institute for Studies in Pragmatism is happy to announce the Charles S. Peirce Interdisciplinary Graduate Fellow 2026, Soroush Tabadkani Avval, Department of Computer Science.

Soroush's research project, "Asynchronous Adaptive Federated Meta-Learning for Personalized, Privacy-Preserving, and Energy-efficient Distributed AI in UAV-Assisted Edge Networks," targets core problems in AI systems and provides models to develop AI tools that are efficient and accessible for both small- and large-scale applications in many fields.

Imagine a smart system where drones help phones, sensors, and other devices learn and improve their AI without sharing private data, while saving battery power. Instead of sending everything to distant cloud servers, drones fly around and bring computing power closer to ground devices. Each device trains AI on its own data privately, and only the results are shared, not the actual data.

The project envisions a technology that addresses several critical challenges simultaneously. Personal data never leaves individual devices, which is especially important for sensitive information like medical records, financial data, or personal photos. The system works effectively in remote areas such as disaster zones where cell towers are down, rural agricultural settings, or military operations in the field. Processing happens locally rather than in distant data centers, enabling faster response times that are critical for time-sensitive applications like emergency response or autonomous vehicles. The energy-efficient design means less data transmission, resulting in longer battery life for devices and allowing drones to stay airborne longer. Perhaps most importantly, it handles real-world complexity smoothly, automatically adapting as devices with different capabilities connect and disconnect from the network, making it practical for actual deployment in challenging environments where collaborative AI, privacy protection, and energy conservation all matter equally.

All these avenues lead to innovative and efficient tools applicable in many research fields within Texas Tech University's Strategic Initiatives, as well as being fundamental for AI-supported societal advancement.

Director, Charles S. Peirce Interdisciplinary Chair

*Elize Bisanz*

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## About Us

The Institute for Studies in Pragmatism is the first and oldest organized center for research on the life and works of American physicist, mathematician, logician and engineer Charles Sanders Peirce (1839–1914), one of the greatest interdisciplinary scientists in history.

Its mission is to provide a collaborative space and intellectual network to experience the immediate benefits of cross-disciplinary research.

