Guven Gergerli

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Driven by a foundation in AI, machine learning, and natural language processing, I aim to further explore the complexities of uncertainty in LLMs and develop explainable AI systems. My long-term goal is to contribute to innovative research and practical applications that enhance human-AI collaboration and advance scientific knowledge in both academic and industrial environments.

EDUCATION

Purdue University **August 2023 – Present**
PhD Student in Computer Science *West Lafayette, IN*
- Advisor: Joseph Campbell

Bilkent University **Sep 2018 – June 2023**
BS in Computer Science *Ankara, Turkey*

WORK EXPERIENCE

CAMP Lab at Purdue University **July 2024 – Present**
Research Assistant *West Lafayette, IN*
- Developing an uncertainty-based Theory of Mind agent model to capture causal effects in a white-box design for long-horizon learning and reasoning.
- Developing a method to infer coactivated and sparse agent intentions using offline reinforcement learning and a decomposed reward function for behavior prediction.

Qatar Computing Research Institute **May 2024 – July 2024**
Visiting Researcher *Doha, Qatar*
- Conducted a comprehensive literature review on protein crystallization, augmenting datasets with synthetic data and evaluating models like SHARC and YOLO-V9 for improved detection accuracy.
- Developed a web application for protein crystallization detection, deployed models on platforms like Hugging Face Spaces, and optimized performance through data augmentation and hyperparameter tuning.

Human Agent Interactions Lab at Purdue University **Aug 2023 – May 2024**
Research Assistant *West Lafayette, IN*
- Developed and tested robot interfaces to utilize physical robots named Furhat and NAO as a novel automated medical speech therapy for elders suffering from stroke-induced aphasia.
- Co-authored a research paper and conducted experiments using half-automated Wizard of Oz methods.

Turkish Airlines Technology **Aug 2022 – Sep 2022**
Machine Learning Intern *Istanbul, Turkey*
- Developed an ANN model to estimate annual income using a Turkish Airlines flights and revenues dataset.
- Visualized the estimated annual income on a regression graph to represent monthly and daily predicted income.

Vela Partners **July 2022 – Aug 2022**
Machine Learning Intern *San Francisco, CA*
- Developed a BERT-based model to measure semantic similarity in a 650,000-company dataset and researched optimal BERT models for efficient categorization.

ESEN Integration System **June 2021 – Aug 2021**
Software Engineer Intern *Ankara, Turkey*
- Developed a Python program to filter and optimize black box transmission messages for defense industry aircraft.
- Produced an HTML-based UI for data visualization of filtered transmission messages designed for mechanical engineers.

AirCar Corp. **July 2020 – Aug 2020**
Machine Learning Intern *Istanbul, Turkey*
- Tested various object detection algorithms for top-view terrain analysis in emergency landing scenarios.
- Generated an RGB terrain dataset using drone technology for fine-tuning object detection algorithms.

SKILLS

- **Languages**: Turkish (Native), English (Professional)
- **Programming Languages**: Python, Java, C, C#, C++, JavaScript, MatLab, PHP, HTML, CSS, SQL
- **Tools & Frameworks**: Pytorch, Keras, Git, GitHub, React.js, Node.js, MongoDB, Firebase, MariaDB, Firebase, JQuery, Linux, Android Studio, MySQL, PostgreSQL, Docker
- **Software Engineering Skills**: Machine Learning, Natural Language Processing, Artificial Intelligence, Reinforcement Learning, LLM Foundation Models, LLM Fine Tuning, Data science, Object-Oriented Programming, Agile Development & Scrum, Data Structures, Requirements Engineering, Algorithm Design