Bakh Yerjan

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Technical Skills

Machine Learning Frameworks: TensorFlow, PyTorch, LLMs
Programming Languages: Python, C/C++, MATLAB, R, SQL
Data Analysis Tools: PowerBI, Excel, pandas, NumPy, scikit-learn, seaborn
Web Technologies: HTML, CSS, JavaScript, Drupal
Other Tools: Docker, Git/GitHub, ROS, Unix/Linux, Adobe Photoshop, Adobe Illustrator, Canva

Experience

IT/Data Graduate Assistant   Jun 2024 – Present
Office of Graduate Studies, University of Kansas

- Created a searchable database for graduate student awards using MS PowerApps and Excel, streamlining award tracking for over 150 students.
- Worked with administrative staff to conduct data analysis and led an audit of university course syllabi for accreditation compliance, ensuring adherence to standards.
- Utilized Google Analytics and Python packages to analyze website traffic patterns, contributing to a 15% increase in website efficiency.
- Managed website content using Drupal, addressing technical issues and broken links for 2 webpages, reducing downtime by 25%.
- Collaborated with staff to communicate technical solutions, evaluated organizational needs, and independently organized tasks to implement effective strategies.

Research Assistant   May 2023 – May 2024
Institute for Information Sciences, University of Kansas

- Built the Perception stack for F1tenth autonomous racing system using graph-based 2D SLAM techniques with ROS2, enhancing real-time mapping, localization capabilities.
- Optimized system performance by fine-tuning hyperparameters, resulting in a 7.5% increase in processing speed.
- Developed a trajectory optimization system for racing line calculations, reducing lap times to an average of 9.6 seconds.
- Conducted iterative testing and model evaluation of the autonomous system in simulated and physical environments, identifying and resolving edge cases to ensure reliability and robustness under dynamic conditions.

Teaching Assistant   Aug 2022 – May 2024
EECS and Math Departments, University of Kansas

- Led Operating Systems labs for two sections (36 students total), applying lecture materials to practical exercises and supervising projects like Quash Terminal and Buddy Memory Allocator.
- Graded midterm, projects and final exams, as well as 11 lab assignments, providing constructive feedback to enhance student performance.
- Hosted weekly office hours totaling 2 hours per week to address student queries, assist with code debugging, and ensure comprehension of complex operating systems concepts.
- Facilitated active learning in College Algebra for 70+ students each semester by verifying student-prepared notes, administering 10 quizzes per semester, and providing tailored accommodations, resulting in strong exam performance across all class sections.
- Enhanced student understanding through visual teaching techniques, including graphing functions with Desmos, and provided one-on-one support during office hours and in the Help Room.
- Collaborated with 2 SI leaders to deliver engaging, activity-based study sessions and achieved top-tier evaluations from 150+ students and supervisors for creating an inclusive and effective learning environment.

Engineering Intern   Sep 2020 – Mar 2021
CWMGL

- Assisted in drafting professional communications in English for companies such as MANITOU Group and Honeywell.

- Supported the coordination of engineering product orders and facilitated contract deliveries to customer organizations such as MCS Energy Resources, ensuring efficient and timely execution of engineering projects.

- Collaborated with the logistics team and engaged with customs officials to process import documents, oversee inspections, and coordinate the receipt of imported equipment and supplies, ensuring compliance with regulations and timely delivery to the company.

Board Member Mar 2020 – Mar 2021

Association of Mongolian Students in America

- Led a successful fundraising campaign, raising \$3,000 to support high-achieving high school students from low-income families with financial aid.

- Organized and managed the Best University Opportunity Program, an online educational initiative for high school students in Mongolia, leading efforts to deliver courses such as "Intro to Programming" focused on Python, broadening access to higher education opportunities.

- Represented the voices of 600 association members, maintaining strong communication with the Embassy of Mongolia in the U.S. during the COVID-19 pandemic, while fostering relationships with donors, sponsors, and community organizations to ensure ongoing success of association efforts.

Aviation Intern Jun 2019

The Civil Aviation Authority of Mongolia

- Gained hands-on experience and industry insights through mentorship from aviation professionals at Chinggis Khan International Airport, focusing on operations and maintenance procedures.

- Observed and participated in MIAT Mongolian Airlines' maintenance checks (A and C) on Boeing-737 and 767 aircraft, learning best practices in aircraft safety and maintenance.

- Expanded knowledge of aviation systems by shadowing Air Traffic Controllers, while building professional connections for future career opportunities in the industry.

Projects and Publications

End-to-End Deep Learning for Real-Time Autonomous Vehicle Navigation 2024

Co-author, IROS 2024

Co-developed TinyLidarNet, a lightweight 2D LiDAR-based end-to-end deep learning model for autonomous racing, achieving superior performance and real-time processing on low-cost microcontrollers. ⬡ Code 📄

Facial Emotion Recognition System 2024

Collaborated on a facial emotion recognition system project using deep learning models like AlexNet and ResNet-50, achieving high accuracy on a dataset of over 28,000 images. ⬡ Code

Impact of Public Library Resources on K-12 Education in Kansas 2023

Analyzed the influence of public library resources on educational outcomes in Kansas, conducted regression analysis, and contributed to report writing. ⬡ Code

Licenses & Certifications

Machine Learning Specialization by DeepLearning.AI	*2024*
Unsupervised Learning, Recommenders, Reinforcement Learning by DeepLearning.AI	*2024*
Advanced Learning Algorithms by DeepLearning.AI	*2023*
Supervised Machine Learning: Regression and Classification by DeepLearning.AI	*2023*
Intermediate SQL by Data Camp	*2024*
Introduction to R by DataCamp	*2024*
Introduction to SQL by DataCamp	*2024*

Education

Master of Science in Computer Science 2024

University of Kansas, ***GPA:*** *3.79*

Activities: Institute for Information Sciences (I2S), IEEE, ACM, KU Chess Club

Bachelor of Science in Aerospace Engineering, with Honors 2021

University of Kansas, ***GPA:*** *3.82*

Activities: University Honors Program, AIAA, Zeta Theta Tau, Scholarship Halls