KENNETH PAT

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EDUCATION:

University of California, Irvine, Irvine, CA — Anticipate Dec 2024
GPA 3.580, Master of Science, Computer Science
University of California, San Diego, San Diego, CA — Jun 2021
GPA 3.440, Bachelor of Science, Computer Science; Minor in Mathematics; Provost Honors – Fall Quarter 2020

TECHNICAL SKILLS:

Programming languages:

Proficient in C / C++, LaTeX, and Python. Intermediate level of Assembly, Bash, Clojure, Haskell, JavaScript, Lua, R, and Verilog. Self-learning HTML, CSS, and iOS SDK. Developed a web application with npm, React, Node.js, Firebase, AWS, and Heroku.

Software and systems:

Created natural language processing (NLP) projects using generative AI tools such as ElevenLabs and Hedra AI. Worked on projects involving large language models. Extensive experience in web development with Amazon Web Services, Microsoft Azure, Google Cloud Platform, and Firebase. Excellent skills in Visual Studio Code, Xcode, Replit, Android Studio, Docker, Jupyter notebook. Designed machine learning models with scikit-learn, SciPy, Keras, TensorFlow, and PyTorch. Developed 3D graphics projects with OpenGL, GLFW, and GLEW. Proficient in Windows, Windows Server, macOS, Linux distros, Solaris, and other UNIX-like systems.

RESEARCH AND PROFESSIONAL EXPERIENCE:

Research Assistant — Jun 2024 – Present

- Artificial Intelligence Portrait Research Group, led by Prof. Simon Penny, University of California, Irvine
- Utilized AI tools such as OpenAI o1, ElevenLabs and Hedra AI to generate AI simulation of a persona delivering lectures.
- Implemented tasks on text generation, image generation, speech synthesis, voice cloning, and video models.

CRLA – Tutor Certification Level 1: Tutor of Mathematics and Physics, City College of San Francisco — Aug 2017 – May 2018

- Advised about 100 students per month on how to acknowledge and realize the strategies for problem-solving so that they will understand the concepts thereof thoroughly.

PUBLICATIONS

Dylan Lee, Shaoyuan Xie, Shagoto Rahman, **Kenneth Pat**, David Lee, and Prof. Qi Alfred Chen
"Prompter Says": A Linguistic Approach to Understanding and Detecting Jailbreak Attacks Against Large-Language Models
In Proceedings of the 1st ACM Workshop on Large AI Systems and Models with Privacy and Safety Analysis (LAMPS '24), October 14–18, 2024, Salt Lake City, UT, USA. https://doi.org/10.1145/3689217.3690618

COURSEWORK AND ENGINEERING PROJECTS:

Computer and Systems Security, Donald Bren School of Information and Computer Science, UC Irvine — Apr – Jun 2024

- Researched and authored a paper on a linguistic approach to adversarial attacks on LLMs and the behavior of ML classifiers.
- Conducted the first systematic analysis to investigate the difference between benign and jailbroken prompts.
- Designed and optimized two ML classifiers with linguistic features as input. Achieved high accuracies on held-out test sets.
- Explored the linguistic relationship and impact between human languages and jailbreaking prompts on AI chatbots.

Efficient Machine Learning Computing, Donald Bren School of Information and Computer Science, UC Irvine — Apr – Jun 2024

- Designed, implemented, and performed pruning metrics and N : M sparsity method on Llama 3-8B Large Language Model.
- Authored an ICML-style project report on experiential learning. Surveyed research papers and hosted presentations.

Research in Human-Centered Computing, Donald Bren School of Information and Computer Science, UC Irvine — Jan – Mar 2024

- Authored two research proposals on topics of health, privacy and security, user interface, and education.
- Researched topics in human-computer interaction, emerging application domains, advanced architectures, and challenges.

Introduction to Computing Education Research, Dept. of Computer Science and Engineering, UC San Diego — Jan – Mar 2021

- Authored a research proposal about student understanding of recursion. Evaluated cases on developing teaching methods using 3D animation software, video games, and HTML 5 games. Synthesized statistical data from studies.
- Surveyed the key findings and research directions of Computing Education Research (CER) and its applications.
- Researched the development of the field, current modes of inquiry, the role of technology in computing, student representation, research-based pedagogical approaches, and efforts toward increasing student diversity in computing.

Software Engineering Project:

- Engineered trip planner web app as the UI Specialist with a team. Designed the app logo. Used JavaScript, HTML, and CSS, with React as the framework for the UI, Node.js as backend, and Firebase as database. Hosted on AWS and Heroku.
- Designed features such as email automation, file permissions, roles, item lists, reminders, and data exporting.

Mobile Apps:

- Developed several mobile games in Sublime Text using Lua, and in Android Studio using Java. Focused on 2D graphics, physical motion, unity, interface designing, file input and output, mathematical operations, and app delivery.

AFFILIATIONS AND COMMUNITY PARTNERSHIPS:

- Association for Computing Machinery (ACM); Member — Sep 2023 – Present
- UC Irvine Transportation and Distribution Services; Student Enforcement Representative — Oct 2023 – Sep 2024