Phat Tran

trantphat.github.io linkedin.com/in/trantphat github.com/trantphat

EDUCATION

Doctor of Philosophy in Computer Science **Sep 2025 – Jun 2030**
Oregon State University *Oregon, USA*

Master of Science in Computer Science **Sep 2023 – Jun 2025**
University of Washington *Washington, USA*

Bachelor of Engineering in Computer Science **Sep 2019 – Jun 2023**
Ho Chi Minh City University of Technology *Ho Chi Minh City, Vietnam*

EXPERIENCE

Research Assistant **Sep 2024 – Jun 2025**
University of Washington *Washington, USA*

- Researched large language models for bioinformatics and developed genomic data analysis frameworks.
- Assisted in teaching Data Structures, Algorithms, and Discrete Math.

Software Engineer **Jun 2022 – Aug 2023**
VNG Corporation *Ho Chi Minh City, Vietnam*

- Built a scalable and fault-tolerant AI-as-a-Service platform to ensure high availability.
- Developed APIs using Node.js, Python, and Golang to enhance the Data Platform infrastructure.
- Designed and deployed full-stack web applications and integrated tools for data systems.
- Collaborated with teams to deploy user data pipelines on social media platforms.

Undergraduate Research Assistant **Sep 2022 – May 2023**
Ho Chi Minh City University of Technology *Ho Chi Minh City, Vietnam*

- Conducted research on Bahnar, a low-resource Southeast Asian ethnic minority language.
- Applied OCR and NLP techniques for Bahnar character recognition, achieving 80% accuracy.
- Digitized Bahnar documents to create initial datasets, supporting further research on the language.

PROJECTS

Hand Gesture Recognition for Game-based Hand Rehabilitation

- Developed an AI-driven system to improve hand rehabilitation, enabling high-quality, at-home therapy for patients.
- Integrated Leap Motion Controller to accurately capture and analyze hand movement data.
- Engineered a high-performance hand gesture classifier using advanced machine learning techniques.
- Designed interactive, game-based rehabilitation exercises to enhance patient engagement and therapy outcomes.

NBA Game Outcome Prediction

- Developed a predictive model for NBA game outcomes, achieving an industry-competitive 70% accuracy.
- Leveraged NBA season data (2015-2020) and NBA 2K ratings to enhance feature engineering in models.
- Conducted in-depth analysis of game logs and player performance metrics for valuable insights.

Genomic Prediction using Large Language Models

- Developed BERT-based models to enhance genomic data analysis and prediction accuracy.
- Optimized k-mer tokenization techniques to improve model performance on complex genomic sequences.
- Implemented multi-GPU training frameworks to efficiently process large-scale genomic datasets.

TECHNICAL SKILLS

Languages: C, C++, Python, Golang, JavaScript, TypeScript, PHP, SQL, LaTeX, R, MATLAB, HTML, CSS.
Technologies/Frameworks: Node.js, React.js, NestJS, TensorFlow, PyTorch, pandas, scikit-learn, NumPy, HuggingFace, PySpark, Redis, MongoDB, PostgreSQL, Prisma, Docker, K9s, Git, Linux, Spark, Hadoop.

PUBLICATIONS

- K. Ho, **P. T. Tran**, S. N. Vo, X. Nguyen, P. G. Le, and T. T. Quan, "A game-based approach for post-stroke hand rehabilitation using hand gesture recognition on Leap Motion skeletal data," in *Proceedings of the 4th International Electronic Conference on Applied Sciences*, Basel, Switzerland, 2023.
- **T. T. Phat**, H. T. Khang, V. N. Sang, N. N. T. Xuan, and L. G. Phat, "Hand gesture recognition for game-based hand rehabilitation," in *The 12th OISP Science and Technology Symposium for Students*, Ho Chi Minh City, Vietnam: VNUHCM Press, 2023, pp. 103–110, ISBN: 978-604-479-185-2.
- N. S. Vo, N. T. X. Nguyen, G. P. Le, L. T. N. Nguyen, T. K. Ho, **T. P. Tran**, and H.A. Pham, "An AIoT Device for Raising Awareness about Trash Classification at Source," in *Intelligent Systems and Data Science*, vol. 1950, Singapore: Springer Nature Singapore, 2024, pp. 78–90, ISBN: 978-981-99-7666-9.