Curriculum Vitae
Mai H. Nguyen
Email: mhnguyen@ucsd.edu

RESEARCH INTERESTS

- Artificial intelligence, machine learning, deep learning, data analysis
- Data science, distributed processing, scalable algorithms
- Remote sensing, satellite image analysis, medical image analysis, natural language processing

EDUCATION

- Ph.D. – Department of Computer Science & Engineering, University of California at San Diego, La Jolla, California
    - Dissertation: *Modeling Dynamic Signals with Neural Networks*
    - Honors: San Diego Fellowship
- M.S. – Department of Computer Science & Engineering, University of California at San Diego, La Jolla, California
    - Honors: Outstanding Teaching Assistant
- B.S. – Department of Computer Science, Colorado State University, Fort Collins, Colorado
    - Minors: Mathematics and Spanish
    - Honors: Graduated with High Distinction, Honors Program

PROFESSIONAL EXPERIENCE

San Diego Supercomputer Center   **2014 - Present**
University of California, San Diego   **Lead for Data Analytics**

- Lead machine learning initiatives for the Data Science Hub, a community hub where method and domain researchers collaborate to apply data science solutions to current challenges.
- Apply machine learning to solve problems in various application areas, including satellite/aerial image analysis, geospatial applications, medical image analysis, and wildfire management.
- Conduct research and development of scalable, distributed application of machine learning algorithms to real-world problems.
- Develop methods to integrate machine learning techniques into scientific workflow system for data science applications for increased reliability, reproducibility, and reusability
- Develop and teach courses (e.g., machine learning course of UCSD's Big Data Specialization for Coursera), workshops, and tutorials on machine learning and scalable data analytics.
- Mentor Bachelors and Masters students on data science projects
- Serve on program committees and review papers for technical conferences and journals.

National University, DeVry University, &   **2010 - 2016**
University of Phoenix   **Adjunct Faculty**

- Developed graduate-level course on data mining.
- Taught college-level courses in data mining, data analysis, and information technology.
- Fostered environment to encourage active learning, critical thinking, and collaboration.
- Assisted in planning, development, and maintenance of program curriculum.

CCC Information Services, Inc. (Headquartered in Chicago, IL)   **2001 - 2009**
Business Intelligence Department   **Senior Software Engineer**

- Led code development and analytic activities that resulted in innovative products to leverage the company's data warehouse of auto insurance claims data, including applications for claims routing and underwriting and for mapping industry-standard data format (CIECA EMS) to internal data format for increased claims processing efficiency and transaction volume capability.
- Designed and developed reporting capabilities to support business performance management for automotive insurance and collision repair industries to continually improve the company's reporting tool, widely used in the automotive industry.
- Served as technical lead and systems analyst on initiative to incorporate claim-level data into data warehouse to provide comprehensive view of automotive claims processes.
- Designed and implemented processes to extract, transform, and load data from transactional source systems into data warehouse.

Britannica.com   **2000**
La Jolla Research Lab   **Computer Scientist**

- Conducted research and development work applying machine learning techniques to information retrieval to provide automated searching and browsing capabilities.
- Served as technical lead and project manager on project to improve search capabilities and user interfaces for encyclopedic applications, resulting in new tool using proprietary knowledge base to improve user's search experience.

BAE Systems   **1999 - 2000**
Systems Engineering Group   **Engineering Specialist**

- Implemented image processing algorithms for video geo-registration, tiepoint generation, and image matching to support precision targeting and mapping applications.
- Developed engineering software for automated image registration.

TRW Space & Technology Division   **1996 - 1998**
Strategic & Launch Systems Technology Department   **Staff Engineer**

- Designed and implemented algorithms to perform data analysis for target recognition and remote sensing applications, using conventional statistical techniques, neural networks, and fuzzy logic.
- Implemented remote sensing applications using visible, radar, infrared, and hyperspectral domains.
- Served as project manager on research and development project, responsible for coordinating development efforts and budget planning.

TRW Space & Technology Division   **1995 – 1996**
Avionics Systems Engineering   **Sr. Member Technical Staff**

- Designed and developed algorithms for spacecraft autonomy applications, with focus on on-board fault detection and management.
- Served as project manager and developer on research and development projects.
- Formulated long-term technology roadmap for future spacecraft autonomy development efforts.
- Honors: Independent Research & Development Roll of Honor

SELECTED PUBLICATIONS

- J. Mante, Y. Hao, J. Jett, U. Joshi, K. Keating, X. Lu, G. Nakum, N. Rodriguez, J. Tang, L. Terry, X. Wu, E. Yu, J. Downie, B. McInnes, M. H. Nguyen, B. Sepulvado, E. M. Young, and C. Myers, "The Synthetic Biology Knowledge System", in *ACS Synthetic Biology*, 2021.
- M. H. Nguyen, G. Nakum, J. Tang, X. Wu, B. McInnes, N. Rodriguez, K. Keating, and E. Young. "Discovering Content through Text Mining for a Synthetic Biology Knowledge System," in International *Workshop on Bio-Design Automation (IWBDA)*, 2020.
- M. H. Nguyen, J. Li, D. Crawl, J. Block, and I. Altintas. "Scaling Deep Learning-Based Analysis of High-Resolution Satellite Imagery with Distributed Processing," at the Workshop on Machine Learning for Big Data Analytics in Remote Sensing, in IEEE Int. Conf. on Big Data, 2019
- S. A. Benz, H. Park, J. Li, D. Crawl, J. Block, M. H. Nguyen, I. Altintas. "Understanding a Rapidly Expanding Refugee Camp Using Convolutional Neural Networks and Satellite Imagery," in *IEEE 15th Int. Conf. on e-Science*, IEEE, 2019
- Y. Tang, J. Wang, M. Nguyen, and I. Altintas. "PEnBayes: A Multi-Layered Ensemble Approach for Learning Bayesian Network Structure from Big Data", *Sensors* 19.20 (2019): 4400
- M. H. Nguyen, E. Abdelmaguid, J. Huang, S. Kenchareddy, D. Singla, L. Wilke, M. Bobar, E. D. Carruth, D. Uys, I. Altintas, E. D. Muse, G. Quer, S. Steinhubl, "Analytics Pipeline for Left Ventricle Segmentation and Volume Estimation on Cardiac MRI using Deep Learning," to appear in *Proc. IEEE Int. Conf. on eScience*, 2018.
- M. H. Nguyen, J. Block, D. Crawl, V. Siu, A. Bhatnagar, F. Rodriguez, A. Kwan, N. Baru, and I. Altintas, "Land Cover Classification at the Wildland Urban Interface using High-Resolution Satellite Imagery and Deep Learning," to appear in *Proc. IEEE Int. Conf. on Big Data*, 2018.
- M. Yazdani, M. H. Nguyen, J. Block, D. Crawl, N. Zurutuza, D. Kim, G. Hanson, and I. Altintas, "Scalable Detection of Rural Schools in Africa using Convolutional Neural Networks and Satellite Imagery," to appear in *Proc. IEEE/ACM Int. Conf. on Utility and Cloud Computing*, 2018.
- M. H. Nguyen, D. Crawl, J. Li, D. Uys, and I. Altintas, "Automated Scalable Detection of Location-Specific Santa Ana Conditions from Weather Data using Unsupervised Learning," in *Proc. IEEE Int. Conf. on Big Data*, 2017.
- J. Block, M. Yazdani, M. Nguyen, D. Crawl, M. Jankowska, J. Graham, T. DeFanti, and I. Altintas, "An Unsupervised Deep Learning Approach for Satellite Image Analysis with Applications in Demographic Analysis," *Proc. IEEE Int. Conf. on eScience*, 2017.

PROFESSIONAL SERVICE

- Reviewer for Future Generation Computer Systems, Fire, IEEE Transactions on Big Data, Journal of Supercomputing. Program Committee Member for Supercomputing, International Conference on Computational Science, International Conference on Parallel Processing
- Serve on NSF & DOE review panels

TECHNICAL SKILLS

- Python, Jupyter, TensorFlow, PyTorch, R, RStudio, MATLAB/Octave, RapidMiner, KNIME, SAS
- Spark, Dask, AWS
- Docker, Kubernetes, Git
- SQL, Postgres, Oracle, Red Brick, MySQL, SQL Server

PATENTS

- M. L. Hanson, L. M. Fesq, and M. H. Nguyen, "In Situ Method and System for Autonomous Fault Detection, Isolation, and Recovery," U.S. Patent No. 6,128,555