THINH K. ON

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EDUCATION

NEW JERSEY INSTITUTE OF TECHNOLOGY – NEWARK, NJ, USA

PhD in Computer Science – Artificial Intelligence **Aug 2021 - Present**

Research Assistant

NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY – SOCORRO, NM, USA

Master of Science in Petroleum Engineering **Aug 2019 – Jul 2021**

Research Assistant

GPA: 4.0 / 4.0

PETROVIETNAM UNIVERSITY – VIETNAM

Bachelor of Petroleum Engineering **Sep 2013 – Sep 2018**

GPA: 8.15 / 10.0

RESEARCH INTERESTS

- AI-related: computer vision, natural language processing, machine learning, data science, data privacy protection, federated learning.
- Petroleum: application of machine learning, optimization, time series prediction.

RESEARCH EXPERIENCE

Wellbore Integrity for CO_2-Enhanced Oil Recovery Wells

August 2019 – July 2021

Investigate the effect of reservoir and injection pressures on well integrity. Conduct experiments, X-ray computed tomography scans, and image processing using machine learning tools. Assess risks of CO_2 leakage in wells using experimental results, field data, and cement bond log.

Multi-objective Optimization for Enhanced Oil Recovery using Pattern Recognition Technique and Metaheuristic Optimization Algorithms

2020 – Present

Design an Expert System using deep learning to solve an inverse problem in Petroleum Engineering. Develop this Expert System by introducing stochastic-search algorithms to achieve multi-objective optimization. Two publications so far on SPE Annual Technical Conference and Exhibition (ATCE) North America, and on Elsevier journal.

AI Agent for Crack Tracker and Classifier Agent

February 2021 – July 2021

Using computer vision and a novel pixel tracking algorithm to convert crack patterns on concrete walls to crack graphs (nodes and edges). Extracting features from the crack graphs using graph algorithms. Conducting correlation analyses between graph features and mechanical features of the concrete walls. One publication being peer-reviewed.

Data-Driven Approaches in Predicting Unexpected Events in Oil/Gas Wells

2020 – Present

Employed Decision Tree, Random Forest, Artificial Neural Network and Bayesian learning method for a multi-class classification problem. Compared performance of the algorithms. Improved training and testing accuracy by tuning model hyperparameters.

AI-Assisted History Matching for Fractured Reservoir X, Cuu Long Basin, Vietnam

Research Project in 2018

Developed a workflow (including Monte Carlo simulation and analyses) as a shortcut for history matching problem, which is an extreme complicated and time-consuming problem. Successfully implemented the workflow using a petroleum reservoir simulation software.

EMPLOYMENT HISTORY

- **Research Assistant**, Department of Petroleum and Natural Gas Engineering, New Mexico Institute of Mining and Technology, USA, 2019 – present
- **BIM and Structural Engineer**, MT Hojgaard Co. Ltd., Vietnam, August 2018 – August 2019
- **Drilling Engineer Intern**, Schlumberger Vietnam, July – August 2018
- **Reservoir Engineer Intern**, VietsovPetro Joint Venture, Vietnam, April – July 2018
- **Reservoir Engineer Intern**, EastSea Star Software Co. Ltd, Vietnam, January – March 2018

CORE SKILLS & RELATED COURSEWORK

- Programming Languages: C, C++, Java, Python, R, MATLAB
- Database Query Languages: PostgreSQL, MySQL, MS SQL Server, MS Access
- Web: HTML, CSS, JavaScript
- Proficient in Object-Oriented Programming
- Graph Search Algorithms, Stochastic Optimization Algorithms
- Supervised, Semi-supervised, Unsupervised, Reinforcement Learning, Computer Vision
- Deep Learning Frameworks/Libraries: PyTorch, OpenCV, Tensorflow, Tensorflow JS

- Digital Image Processing, Pixel Classification using Probability-Based Machine Learning Algorithms
- In-depth knowledge in Calculus, Linear Algebra, Ordinary and Partial Differential Equations, Statistics, Physics, Theoretical Mechanics and Chemistry
- Advanced Scientific and Numerical Computing

LANGUAGES & CERTIFICATES

- TOEFL iBT: 101 (Listening: 28, Reading: 22, Writing: 28, Speaking: 23) – taken in 2020
- GRE: 316 (Quantitative 169, Verbal 147, Analytical Writing 3.0) – taken in 2019
- French: intermediate proficiency
- Vietnamese: native language

HONORS & AWARDS

Awards in Vietnam's National Academic Contests for University / College Students (2014 – 2018)

- Second Prize in National Theoretical Mechanics Olympics (2018), **rank 5**
- First Prize in National Physics Olympics (2015), **rank 1**
- Second Prize in National Physics Olympics (2014), **top 10%**
- Second Prize in National Chemistry Olympics (2014), **top 10%**

Awards in Vietnam's Regional/Provincial Academic Contests for High School Students (2010 – 2012)

- Third Prize in Chemistry in National Excellence Student Contest (2012), **top 20%**
- Silver Medal in Chemistry, Regional Excellence Student Contest in Southern Vietnam (2012), **top 10**
- First Prize in Chemistry, Provincial Excellence Student Contest (2012), **rank 2**
- Gold Medal in Chemistry, Olympic 30/4 for Mid and Southern Vietnam high schools (2011), **top 5**
- Silver Medal in Chemistry, Regional Excellence Student Contest in Southern Vietnam (2011), **top 10**
- Second Prize in Chemistry, Provincial Excellence Student Contest (2011), **rank 2**
- Silver Medal in Chemistry, Olympic 30/4 for Mid and Southern Vietnam high schools (2010), **top 10**

Certificates of Merits for Academic Excellence and Leadership Potential (2014 – 2015)

- Granted by PetroVietnam Petroleum Corporation (2015)
- Granted by UOP Honeywell – USA (2014)
- Granted by PetroVietnam Petroleum Corporation (2014)

LEADERSHIP SKILLS

President & Founder of Vietnamese Student Association, New Mexico Institute of Mining and Tech

2019 - Present

- A non-profit student organization with the mission of providing opportunities for Vietnamese students to improve culturally, socially, mentally and academically.

- We also build and strengthen cordial relationship between Vietnamese students, US students and other international student communities at New Mexico Tech. We protest any racial discrimination and unite all students at New Mexico Tech.

Vice-president and Founder of Fab-Lab Vung Tau, Vietnam

2016 - Present

- A non-profit educational organization, aiming at providing high school students with essential skills such as: basic programming, electric circuiting, presentation skills, teamwork, etc.
- Host free workshops where high school students work in team to deliver innovative prototypes regarding to the annual topic of the event, such as: environmentally friendly products, products that assist the handicapped, etc.

PROFESSIONAL MEMBERSHIP & INTERESTS

- Member of the Society of Petroleum Engineers and the American Association of Drilling Engineers
- Member of the research consortium Production and Drilling Research Project at New Mexico Tech
- Member of the Tikkun Olam Makers (TOM) Organization
- Reading books and learning languages
- Sports: soccer, swimming.