NGUYEN VAN THIEU

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EDUCATION

Master in Computer Science   10/2018 - 04/2021

Hanoi University of Science and Technology, Hanoi, Vietnam
School of Information and Communication Technology

- GPA: 3.72/4
- Thesis: Time series analysis for forecasting problem

Bachelor of Information Technology   08/2013 - 08/2018

Hanoi University of Science and Technology, Hanoi, Vietnam
School of Information and Communication Technology

- ICT Talented Engineer Program, GPA: 3.03/4
- Thesis: Building a self-organizing neural network for forecasting future cloud resources consumption

TECHNICAL SKILLS

OS Preferences: Windows, GNU/Linux
Programming:

- **Language**: Python, Java, PHP, Javascript, C/C++

- **AI Frameworks**: Numpy, Pandas, Scikit-Learn, Tensorflow, Keras, Pytorch

- **Web Development**: HTML, CSS, Materialize, Bootstrap, Angular 2, Flask, Nodejs, Express, Spring Framework

- **App Development**: Java Android, Ionic Framework

- **Database**: MySQL, MongoDB

EXPERIENCE

Phenikaa University, Hanoi, Vietnam: Lecturer and Researcher   01/2022 – Now

- Full-time teaching at the Faculty of Computer Science.
- Taught courses: Python for Artificial Intelligence, Data Analysis Programming with Python, Introduction to Data Science and Artificial Intelligence, Introduction to Database, Data Visualization.
- Research works: Developing open-source software for optimization problems such as feature selection, feature extraction, hyper-parameter optimization, neural architecture design. Some of completed libraries such as:

    – Mealpy: Python library for the state-of-the-art metaheuristic algorithms.

    – Opfunu: Python library for benchmark functions in numerical optimization problems.

    – Mafese: Feature selection using metaheuristic algorithms.

    – Permetrics: Artificial intelligence (AI, ML, DL) performance metrics.

    – IntelELM: Intelligent metaheuristic-based extreme learning machine.

    – Reflame: Revolutionizing functional link neural network by metaheuristic algorithms.

    – MetaPerceptron: Metaheuristic-optimized multi-layer perceptron network

Artificial Intelligence Independent Research Group (AIIR Group), Vietnam: Co-founder   03/2020 – Now

- Main works: Applying artificial intelligence models and optimization techniques in both academic and industrial settings.
- Current domains include engineering (with a focus on groundwater management and streamflow prediction), path planing for UAVs, WSN optimization, resource consumption and energy saving in cloud environment, optimization in geology and mining.

High Performance Computing Center (HPCC - HUST), Vietnam: Researcher 08/2017 - 12/2021

- Topic: Optimization (Metaheuristic Algorithms), AI, Machine Learning, Deep Learning
- Applied machine learning and deep learning to forecast time-series data (Worldcup 1998 requests, Google cluster trace).
- Designed an improved time-series forecasting model based on neural networks (self-structuring neural networks, functional link neural networks, ELM, MLP, self-organized network inspired by immune algorithm (SONIA), etc.) and computational intelligence techniques (swarm optimization, human-inspired optimization, etc.).
- Designed an auto-scaling system that optimizes energy consumption in cloud servers by turning servers off or on as needed.

Fukuda Laboratory, National Institute of Informatics (NII), Japan: Researcher 03/2020 - 09/2020

- Topic: Estimating system log templates using deep transfer learning.
- Worked on data-driven methods such as abstracting execution logs (AEL - heuristics), Drain (parsing tree), CRF (NLP), and Nulog (neural network).
- Designed a deep transfer learning model (DTNN - NLP) based on an extension of CRF that incorporates semantic information at the word and character level in NLP, and uses transfer learning based on deep neural networks (LSTM and GRU).

Parallel Computing and Optimization Group (PCOG), Luxembourg: Researcher 09/2019 - 02/2020

- Topic: Meta-heuristics and Its Application
- Applied bio-inspired and meta-heuristic algorithms to solve combinatorial optimization problems, as well as problems in robotics and computer simulations.
- Optimized the path planning of a swarm of UAVs using the CoppeliaSim simulator.

PUBLICATIONS

- **Van Thieu, N.** (2024). Opfunu: An Open-source Python Library for Optimization Benchmark Functions. Journal of Open Research Software, 12(1).

- **Van Thieu, N.** (2024). PerMetrics: A Framework of Performance Metrics for Machine Learning Models. Journal of Open Source Software, 9(95), 6143.

- Nguyen, Hoang, Yosoon Choi, Masoud Monjezi, **Nguyen Van Thieu**, and Trung-Tin Tran. "Predicting different components of blast-induced ground vibration using earthworm optimisation-based adaptive neuro-fuzzy inference system." International Journal of Mining, Reclamation and Environment 38, no. 2 (2024): 99-126.

- Vu, Thai Ha, Ngoc Quang Vu, and **Nguyen Van Thieu**. "Spatial prediction of bridge displacement using deep learning models: A case study at Co Luy bridge." Applications of Artificial Intelligence in Mining, Geotechnical and Geoengineering. Elsevier, 2024. 437-461.

- **Van Thieu, N.**, Oliva, D. and Pérez-Cisneros, M., 2023. MetaCluster: An open-source Python library for metaheuristic-based clustering problems. SoftwareX, 24, p.101597.

- Nguyen, B.M., **Nguyen, T.**, Vu, Q.H., Tran, H.H., Vo, H., Binh, H.T.T., Yu, S. and Wu, Z., 2023. A novel nature-inspired algorithm for optimal task scheduling in fog-cloud blockchain system. IEEE Internet of Things Journal.

- Zhao L, Wilson SB, **Van Thieu N**, Zhou J, Romulus C, Tran TT. A new intelligence model for evaluating clay compressibility in soft ground improvement: a combined approach of bees optimization and extreme learning machine. Acta Geophysica. 2023 Oct 24:1-7.

- Nguyen, H., Choi, Y., Monjezi, M., **Van Thieu, N.** and Tran, T.T., 2023. Predicting different components of blast-induced ground vibration using earthworm optimisation-based adaptive neuro-fuzzy inference system. International Journal of Mining, Reclamation and Environment, pp.1-28.

- **Van Thieu N**, Mirjalili S. MEALPY: An open-source library for latest meta-heuristic algorithms in Python. Journal of Systems Architecture. 2023 Jun 1;139:102871.

- **Van Thieu N**, Barma SD, Van Lam T, Kisi O, Mahesha A. Groundwater level modeling using Augmented Artificial Ecosystem Optimization. Journal of Hydrology. 2023 Feb 1;617:129034.

- Nguyen BM, Tran T, **Nguyen T**, Nguyen G. An Improved Sea Lion Optimization for Workload Elasticity Prediction with Neural Networks. International Journal of Computational Intelligence Systems. 2022 Oct 29;15(1):90.

- Xie C, Nguyen H, Bui XN, **Nguyen VT**, Zhou J. Predicting roof displacement of roadways in underground coal mines using adaptive neuro-fuzzy inference system optimized by various physics-based optimization algorithms. Journal of Rock Mechanics and Geotechnical Engineering. 2021 Dec 1;13(6):1452-65.

- **Nguyen T**, Nguyen T, Vu QH, Huynh TT, Nguyen BM. Multi-objective sparrow search optimization for task scheduling in fog-cloud-blockchain systems. In2021 IEEE International Conference on Services Computing (SCC) 2021 Sep 5 (pp. 450-455). IEEE.

- Ahmed AN, Van Lam T, Hung ND, **Van Thieu N**, Kisi O, El-Shafie A. A comprehensive comparison of recent developed meta-heuristic algorithms for streamflow time series forecasting problem. Applied Soft Computing. 2021 Jul 1;105:107282.

- **Nguyen T**, Kobayashi S, Fukuda K. Logdtl: Network log template generation with deep transfer learning. In2021 IFIP/IEEE International Symposium on Integrated Network Management (IM) 2021 May 17 (pp. 848-853). IEEE.

- Nguyen BM, Nguyen T, **Nguyen T**, Do BL. MPoC-A Metaheuristic Proof of Criteria Consensus Protocol for Blockchain Network. In2021 IEEE International Conference on Blockchain and Cryptocurrency (ICBC) 2021 May 3 (pp. 1-8). IEEE.

- Nguyen BM, Hoang B, **Nguyen T**, Nguyen G. nQSV-Net: a novel queuing search variant for global space search and workload modeling. Journal of Ambient Intelligence and Humanized Computing. 2021 Jan;12:27-46.

- Nguyen BM, Tran T, **Nguyen T**, Nguyen G. Hybridization of galactic swarm and evolution whale optimization for global search problem. IEEE Access. 2020 Apr 20;8:74991-5010.

- **Nguyen T**, Nguyen G, Nguyen BM. EO-CNN: an enhanced CNN model trained by equilibrium optimization for traffic transportation prediction. Procedia Computer Science. 2020 Jan 1;176:800-9.

- **Nguyen T**, Hoang B, Nguyen G, Nguyen BM. A new workload prediction model using extreme learning machine and enhanced tug of war optimization. Procedia Computer Science. 2020 Jan 1;170:362-9.

- **Thieu Nguyen**, Nguyen BM, Nguyen G. Efficient time-series forecasting using neural network and opposition-based coral reefs optimization. International Journal of Computational Intelligence Systems. 2019;12(2):1144-61.

- **Nguyen T**, Nguyen BM, Nguyen G. Building resource auto-scaler with functional-link neural network and adaptive bacterial foraging optimization. InTheory and Applications of Models of Computation: 15th Annual Conference, TAMC 2019, Kitakyushu, Japan, April 13–16, 2019, Proceedings 15 2019 (pp. 501-517). Springer International Publishing.

- **Nguyen T**, Tran N, Nguyen BM, Nguyen G. A resource usage prediction system using functional-link and genetic algorithm neural network for multivariate cloud metrics. In2018 IEEE 11th conference on service-oriented computing and applications (SOCA) 2018 Nov 20 (pp. 49-56). IEEE.

AWARDS AND CERTIFICATIONS

- Achieved the Erasmus+ scholarship for International Exchange Student to University of Luxembourg (07/2019)
  + Organizations: European Union (EU) and University of Luxembourg

- Achieved the NII International Internship Program for International Exchange Student to NII, Japan (02/2020)
  + Organizations: National Institute of Informatics (NII), Japan

REFERENCES

Dr. Hoang Nguyen
 Mining Faculty, Hanoi University of Mining and Geology, Hanoi, Viet Nam

Assoc. Prof. Harish Garg
 School of Mathematics, Thapar Institute of Engineering & Technology, Patiala, India.

Assoc. Prof. Ozgur Kisi
 Civil Engineering Department, University of Applied Sciences, Lübeck, Germany

Assoc. Prof. Diego Oliva
 Department of Computer Sciences of the Universidad de Guadalajara in the Centro Universitario de Ciencias Exactas e Ingenierias, Jalisco, Mexico.

Prof. Fukuda Kensuke
National Institute of Informatics, Japan Department of Informaitcs, Graduate University for Advanced Studies (SOKENDAI), Japan

Prof. Ahmed El-Shafiee
Civil Engineering Department, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia

Assoc. Prof. Binh Minh Nguyen
Ha Noi University of Science and Technology, Ha Noi, Viet Nam.

Prof. Seyedali Mirjalili
Centre for Artificial Intelligence Research and Optimization, Torrens University Australia, Australia

Dr. Ali Najah Ahmeda
Civil Engineering Department, College of Engineering, Universiti Tenaga Nasional (UNITEN), Selangor, Malaysia

Assoc. Prof. Giang Nguyen
Institute of Informatics, Slovak Academy of Sciences, Bratislava, Slovakia.

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