Vuong V. Trinh

Distributed Control System & Advanced Process Control Engineer

https://trinhvanvuong.github.io vanvuong.trinh@gmail.com +84(0)898319472

Experience

Distributed Control System Engineer, **Nghi Son Refinery and Petrochemical LLC** since 2020

- Person in charge of Distributed Control System (DCS) and Safety Instrumented System (SIS) leveraging Experion PKS, C300 Controller and Safety Manager as well as VMware Server;
- Implementation and maintenance of Advanced Process Control (APC) applications leveraging Honeywell RMPCT and Aspen DMC3 for refinery units (CDU, RFCC, AROMA, RHDS);
- Spare parts management and purchase requisition using IBM Maximo;
- Responsible for various tasks, e.g. PID control tuning; root cause analysis (RCA) of incidents and trips; functions test and loops check; events investigation of emergency shutdown (ESD) valves via data mining; partial stroke tests (PST) using Honeywell Field Device Manager and Emerson ValveLink.

Artificial Intelligence Researcher, **ENSAIT/GEMTEX Textile Research Laboratory** 2019

- Work with Kim-Phuc Tran on real-time anomaly detection algorithms for industrial Big Data, e.g. wireless sensor networks;
- Intensive use of Python (*Pandas, Scikit-Learn, Streamlit, Selenium, PyAutoGUI, Flask*); familiar with JAMstack (*Hugo, Wowchemy, Netlify*), JS (*Highcharts*) and cloud (*Heroku, Azure, AWS, GCP*).

Control System Engineer, **Benjamin Muyl Design Sarl** 2018

- Work with Benjamin Muyl (INEOS TEAM UK) on optimal control of sail yachts with direct collocation;
- Contribute to the software *META* by upgrading from Java / Matlab to Python using symbolic framework;
- Deploy Python (*CasADi*), version management (*Git*), production tools (*Bash*) and unit-tests.

Process Control Engineer, **French Alternative Energies and Atomic Energy Commission** 2014–2017

Supervisors: Mazen Alamir (CNRS/GIPSA-lab) and Patrick Bonnay (CEA/SBT) on advanced cryogenic process control and energetic optimization, within project ANR CRYOGREEN.

- Develop advanced model predictive control strategies, e.g. explicit constrained control and hierarchical distributed coordination, via machine learning, mathematical optimization and numerical algorithms;
- Model and control of compression stations and cryogenic refrigerators using *Simcryogenics*; experiments with SBT's station 400W 1.8K and CERN's 18kW 4.5K LHC facilities;
- Real-time nonlinear constrained control for Stirling engine in solar thermodynamic power plant;
- Intensive use of Matlab and C (*CPLEX, ACADO*); familiar with PLC/DCS/SCADA and technical editting (*TeX, Inkscape*).

Research Intern, **French National Centre for Scientific Research** 2014

Supervisors: Ioan Doré Landau and Luc Dugard (CNRS/GIPSA-lab), on active vibration control.

- Perform system identification, robust control design and experiments using Matlab and xPC Target;
- Laboratory instructor for adaptive control course within European Embedded Control Institute.

Industrial Intern, **Yazaki Corporation** 2011

- Analyse technical specifications and devise suitable solution for automotive wire production conveyors;
- Setup control box, relays and inverters; program PLC and HMI; deploy AutoCAD, Step7 and WinCC.

Education

M.S. Automation & Control Engineering, Université Joseph Fourier & Grenoble INP 2013–2014

Mention: *good* (*MiSCIT Program*) | GPA: 15/20 | Rank: 3/18

B.S. Automation & Control Engineering, Hanoi University of Science and Technology 2007–2012

Mention: *good* (*Talented Engineer's Program*) | GPA: 3.17/4.00

LANGUAGES Vietnamese (*native*) | English (*fluent*: IELTS 6.5) | French (*basic*)

AWARDS

Excellence Master Fellowship, LabEx PERSYVAL-Lab 2013

Vallet Scholarship, Rencontres du Viêtnam 2008

Double Prize in Physics (1st) and Maths (cons), Vietnam Mathematics & Youth Magazine 2007

PUBLICATIONS

V. V. Trinh, M. Alamir, P. Bonnay and F. Bonne, **Explicit model predictive control via nonlinear piecewise approximations**, in *Proceedings of the 10th IFAC Symposium in Nonlinear Control Systems*, Monterey, CA, USA, 2016.

M. Alamir, V. V. Trinh and P. Bonnay, **On the stabilization of fixed-point iterations arising in hierarchical control design**, in *Proceedings of the 20th IFAC World Congress*, Toulouse, France, 2017.

M. Alamir, P. Bonnay, F. Bonne and V. V. Trinh, **Fixed-point based hierarchical MPC control design for a cryogenic refrigerator**, *Journal of Process Control*, vol. 58, pp. 117-130, 2017.

V. V. Trinh, K. P. Tran and A. T. Mai, **Anomaly detection in wireless sensor networks via support vector data description with Mahalanobis kernels and discriminative adjustment**, in *Proceedings of the 2017 4th NAFOSTED Conference on Information and Computer Science*, Hanoi, Vietnam, 2017.

V. V. Trinh, K. P. Tran and T. H. Truong, **Data driven hyperparameter optimization of one-class support vector machines for anomaly detection in wireless sensor networks**, in *Proceedings of the 2017 International Conference on Advanced Technologies for Communications*, Quy Nhon, Vietnam, 2017.

VALORISATION

Advanced Process Control: Profit Controller & Profit Optimizer Implementation, Honeywell

Safety Manager: Maintenance, Honeywell

Safety Manager: Implementation, Honeywell

VMware Certified Professional - Data Center Virtualization, VMWare

Networking and Security Architecture with VMware NSX, Coursera | VMWare

Computer Science, edX | Harvard University

Google Project Management Professional Certificate, Coursera | Google

Deep Learning Specialization, Coursera | DeepLearning.AI

TUM Lean Six Sigma Yellow Belt, Technische Universität München

IBM Cybersecurity Analyst Professional Certificate, Coursera | IBM

IBM Data Analyst Professional Certificate, Coursera | IBM

REFERENCES

Kim-Phuc Tran — *Associate Professor in Automation and Industrial Informatics*
Email: kim-phuc.tran@ensait.fr
Phone: +33 (0)3 20 25 89 60
École Nationale Supérieure des Arts et Industries Textiles
2 allée Louise et Victor Champier, 59056 Roubaix, France

Ioan-Doré Landau — *Emeritus Research Director at National Centre for Scientific Research*
Email: ioan-dore.landau@gipsa-lab.fr
Phone: +33 (0)4 76 82 63 91
Grenoble Images Parole Signal Automatique Laboratoire
11 rue des Mathématiques, 38400 Saint-Martin-d'Hères, France