

Vuong V. Trinh

Distributed Control System & Advanced Process Control Engineer

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EXPERIENCE

DCS / APC Engineer, Nghi Son Refinery and Petrochemical LLC since 2020

- Person in charge of DCS/SIS/FGS/BMS/PBCS/OMS leveraging Experion PKS, C300 Controller and Safety Manager as well as VMware vSphere;
- Implementation and maintenance of APC applications leveraging Honeywell RMPCT and Aspen DMC3;
- Responsible for various tasks: PID tuning; troubleshoot control logic and instruments' problems; function tests and loops check; incidents and trips root cause analysis; events investigation of ESD valves for SIF/SIL monitoring via data mining with Python; partial stroke tests using Honeywell Field Device Manager and Emerson ValveLink; data analysis and processing with Python for spare parts management in IBM Maximo; industrial control system cybersecurity; prepare and review PTW and MOC.

Artificial Intelligence Researcher, Dong A University Research Institute 2019

- Work with Kim-Phuc Tran (ENSAIT/GEMTEX) 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 editing (*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 (<i>native</i>) English (<i>fluent</i> : IELTS 6.5) French (<i>basic</i>)	
AWARDS	Excellence Master Fellowship , LabEx PERSYVAL-Lab	2013
	Vallet Scholarship , Rencontres du Vietnam	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 piece-wise approximations , in <i>Proceedings of the 10th IFAC Symposium in Nonlinear Control Systems</i> , 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 <i>Proceedings of the 20th IFAC World Congress</i> , Toulouse, France, 2017.	
	M. Alamir, P. Bonnay, F. Bonne and V. V. Trinh, Fixed-point based hierarchical MPC control design for a cryogenic refrigerator , <i>Journal of Process Control</i> , 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 <i>Proceedings of the 2017 4th NAFOSTED Conference on Information and Computer Science</i> , 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 <i>Proceedings of the 2017 International Conference on Advanced Technologies for Communications</i> , Quy Nhon, Vietnam, 2017.	
VALORISATION	Google Project Management Professional Certificate , Coursera Google	
	Deep Learning Specialization , Coursera DeepLearning.AI	
	Investment Management Specialization , Coursera University of Geneva	
	Blockchain Revolution Specialization , Coursera INSEAD	
	TUM Lean Six Sigma Yellow Belt , Technische Universität München	
	IBM Cybersecurity Analyst Professional Certificate , Coursera IBM	
	IBM Data Science Professional Certificate , Coursera IBM	
	IBM Data Analyst Professional Certificate , Coursera IBM	
	IBM Full Stack Cloud Developer Professional Certificate , Coursera IBM	
	Creating and Developing a Tech Startup , Coursera École Polytechnique HEC Paris	
	Investment Management in an Evolving and Volatile World , Coursera HEC Paris AXA IM	
	Networking and Security Architecture with VMware NSX , Coursera VMWare	
	Advanced Process Control: Profit Controller & Profit Optimizer Implementation , Honeywell	
	Safety Manager: Implementation , Honeywell	
REFERENCES	Kim-Phuc Tran <i>Associate Professor in Automation and Industrial Informatics</i>	
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