

# Vuong V. Trinh

Distributed Control System & Advanced Process Control Engineer

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## 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;
- Supervise and run Factory Acceptance Test (FAT) of DCS migration in Singapore;
- 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 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	<b>Excellence Master Fellowship</b> , LabEx PERSYVAL-Lab	2013
	<b>Vallet Scholarship</b> , Rencontres du Vietnam	2008
	<b>Double Prize in Physics (1st) and Maths (cons)</b> , Vietnam Mathematics & Youth Magazine	2007
PUBLICATIONS	<b>V. V. Trinh, M. Alami, P. Bonnay and F. Bonne, Explicit model predictive control via nonlinear piece-wise approximations</b> , in <i>Proceedings of the 10th IFAC Symposium in Nonlinear Control Systems</i> , Monterey, CA, USA, 2016.	
	<b>M. Alami, V. V. Trinh and P. Bonnay, On the stabilization of fixed-point iterations arising in hierarchical control design</b> , in <i>Proceedings of the 20th IFAC World Congress</i> , Toulouse, France, 2017.	
	<b>M. Alami, P. Bonnay, F. Bonne and V. V. Trinh, Fixed-point based hierarchical MPC control design for a cryogenic refrigerator</b> , <i>Journal of Process Control</i> , vol. 58, pp. 117-130, 2017.	
	<b>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</b> , in <i>Proceedings of the 2017 4th NAFOSTED Conference on Information and Computer Science</i> , Hanoi, Vietnam, 2017.	
	<b>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</b> , in <i>Proceedings of the 2017 International Conference on Advanced Technologies for Communications</i> , Quy Nhon, Vietnam, 2017.	
VALORISATION	<b>Advanced Process Control: Profit Controller &amp; Profit Optimizer Implementation</b> , Honeywell	
	<b>Safety Manager: Maintenance</b> , Honeywell	
	<b>Safety Manager: Implementation</b> , Honeywell	
	<b>VMware Certified Professional - Data Center Virtualization</b> , VMWare	
	<b>Networking and Security Architecture with VMware NSX</b> , Coursera   VMWare	
	<b>Computer Science</b> , edX   Harvard University	
	<b>Google Project Management Professional Certificate</b> , Coursera   Google	
	<b>Deep Learning Specialization</b> , Coursera   DeepLearning.AI	
	<b>TUM Lean Six Sigma Yellow Belt</b> , Technische Universität München	
	<b>IBM Cybersecurity Analyst Professional Certificate</b> , Coursera   IBM	
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