

# Vuong V. Trinh

Process Control and Optimization

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## EXPERIENCE

**Associate Researcher in Artificial Intelligence** since 2019  
**Dong A University Research Institute** Da Nang, Vietnam

- Work with Kim-Phuc Tran, Anh-Tuan Mai and Thu-Huong Truong on real-time anomaly detection algorithms for industrial Big Data, particularly for wireless sensor networks;
- Familiar with Python (*Flask*, *Pandas*, *Scikit-Learn*), JS (*Highcharts*), Heroku (*Postgres*), AWS (*RDS*, *EC2*); technical documentation (*Office*, *TeX*, *Inkscape*, *GIMP*); embedded systems (*Rasp Pi*, *STM32*).

**R&D Engineer in Naval Simulation and Optimization** 2018  
**Benjamin Muyl Design Sarl** Auray, France

- Work with Benjamin Muyl and Antoine Guillou on simulation and optimization of sail yachts;
- Contribute to *META* project by upgrading from Java and Matlab to Python using symbolic framework;
- Deploy Python (*CasADi*), version management (*Git*), production tools (*Bash*) and unit-tests.

**R&D Engineer in Process Control and Optimization** 2014–2017  
**Commissariat à l'Énergie Atomique et aux Énergies Alternatives** Grenoble, France  
Supervisors: Mazen Alamir and Patrick Bonnay on 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, simulation and control of compression stations and cryogenic refrigerators using *Simcryogenics* and *EcosimPro*; involve in experiments with SBT's station 400W 1.8K, CERN's 18kW 4.5K LHC facilities and Schneider Electric's solar thermodynamic power plant;
- Intensive use of Matlab and C (*CPLEX*, *ACADOtoolkit*); familiar with PLCs (*Siemens S7-300/400*, *Schneider M340/450*), DCS and SCADA; instruments (coldbox, compressor, valve, sensor, pump).

**Research Intern in Active Vibration Control** 2014  
**Grenoble Images Parole Signal Automatique Laboratoire** Grenoble, France  
Supervisors: Ioan Doré Landau and Luc Dugard, on active vibration control for automotive applications.

- Perform system identification, robust control design and experiments using Matlab and xPC Target;
- Laboratory instructor and teaching assistant within European Embedded Control Institute IGSC.

**Industrial Intern in Production and Automation** 2011  
**Yazaki Corporation** Hai Phong, Vietnam

- 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

## AWARDS

**Excellence Master Fellowship**, LabEx PERSYVAL-Lab 2013  
**Vallet Scholarship for excellent academic performance**, Rencontres du Vietnam 2008  
**Double Prize in Physics (1st) and Maths (cons)**, Vietnam Mathematics & Youth Magazine 2007

## LANGUAGES

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

PUBLICATIONS	<p><b>V. V. Trinh, M. Alamir, 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.</p> <p><b>M. Alamir, 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.</p> <p><b>M. Alamir, 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.</p> <p><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.</p> <p><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.</p>		
VALORISATION	<p><b>CS50's Introduction to Computer Science</b>, edX   Harvard University</p> <p><b>Six Sigma and Lean Processional Program</b>, edX   Technische Universität München</p> <p><b>TUM Lean Six Sigma Yellow Belt</b>, Technische Universität München   TUM School of Management</p> <p><b>Semaine d'Étude Maths-Info Entreprises</b>, Agence Maths Entreprises</p>		
SERVICES	<b>Organization Team of JSIam</b> , Grenoble Innovation for Advanced New Technologies		2016
REFERENCES	<p><b>Kim-Phuc Tran</b>  Email: kim-phuc.tran@ensait.fr  Phone: +33 (0)3 20 25 89 60</p> <p><b>Ioan-Doré Landau</b>  Email: ioan-dore.landau@gipsa-lab.fr  Phone: +33 (0)4 76 82 63 91</p>	<p><i>Associate Professor in Automation and Industrial Informatics</i>  École Nationale Supérieure des Arts et Industries Textiles  2 allée Louise et Victor Champier, 59056 Roubaix, France</p> <p><i>Emeritus Research Director at National Centre for Scientific Research</i>  Grenoble Images Parole Signal Automatique Laboratoire  11 rue des Mathématiques, 38400 Saint-Martin-d'Hères, France</p>	
MISC	<p><b>Personal Info:</b> Gender: Male   Marital status: Single   DOB: 20 Dec 1989   POB: Thanh Hoa (Vietnam)</p> <p><b>Interests:</b> Hiking   Ping-pong   Reading</p>		