

Vuong V. Trinh

Process Control and Optimization

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EXPERIENCE

- Associate Researcher in Industrial Automation and Artificial Intelligence** since 2019
Dong A University Research Institute Da Nang, Vietnam
- Work with Kim-Phuc Tran (ENSAIT/GEMTEX), Anh-Tuan Mai (MOST) and Thu-Huong Truong (HUST) on real-time anomaly detection algorithms for industrial Big Data, e.g. wireless sensor networks;
 - Familiar with Python (*Flask*, *Pandas*), JS (*Highcharts*), Heroku (*Postgres*), AWS (*RDS*, *EC2*); technical documentation (*Office*, *TeX*, *Inkscape*, *GIMP*); instruments (*dryer*, *granulation*, *conveyor*, *pellet mill*).
- R&D Engineer in Simulation and Optimization** 2018
Benjamin Muyl Design Sarl Auray, France
- Work with Benjamin Muyl (INEOS TEAM UK) on simulation and optimization of sail yachts;
 - 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.
- R&D Engineer in Process Control and Optimization** 2014–2017
Commissariat à l'Énergie Atomique et aux Énergies Alternatives Grenoble, France
- Supervisors: Mazen Alamir (CNRS/GIPSA-lab) and Patrick Bonnay (CEA-INAC/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, simulation and control of compression stations and cryogenic refrigerators using *Simcryogenics* and *EcosimPro*; experiments with SBT's station 400W 1.8K, CERN's 18kW 4.5K LHC facilities;
 - Intensive use of Matlab and C (*CPLEX*, *ACADO*); familiar with PLC/DCS/SCADA and instruments (*coldbox*, *compressor*, *valve*, *transmitter*, *heat exchanger*, *turbine*, *phase separator*).
- Research Intern in Active Vibration Control** 2014
Grenoble Images Parole Signal Automatique Laboratoire Grenoble, France
- 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 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 **V. V. Trinh, M. Alami, P. Bonnay and F. Bonne, Explicit model predictive control via nonlinear piece-wise approximations**, in *Proceedings of the 10th IFAC Symposium in Nonlinear Control Systems*, Monterey, CA, USA, 2016.

M. Alami, 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. Alami, 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 **CS50's Introduction to Computer Science**, edX | Harvard University

Six Sigma and Lean Processional Program, edX | Technische Universität München

TUM Lean Six Sigma Yellow Belt, Technische Universität München | TUM School of Management

Semaine d'Étude Maths-Info Entreprises, Agence Maths Entreprises

SERVICES **Organization Team of JSIam**, Grenoble Innovation for Advanced New Technologies 2016

REFERENCES **Kim-Phuc Tran** Associate Professor in Automation and Industrial Informatics
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 Phone: +33 (0)3 20 25 89 60 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 Grenoble Images Parole Signal Automatique Laboratoire
 Phone: +33 (0)4 76 82 63 91 11 rue des Mathématiques, 38400 Saint-Martin-d'Hères, France

MISC **Personal Info:** Gender: Male | Marital status: Single | DOB: 20 Dec 1989 | POB: Thanh Hoa (Vietnam)

Interests: Hiking | Ping-pong | Reading