

# Vuong V. Trinh

Process Control and Optimization

🌐 <https://vuongvtrinh.github.io> ✉ [vanvuong.trinh@gmail.com](mailto:vanvuong.trinh@gmail.com) ☎ +84(0)932375111 📷 [trinhvv](#)

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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*), SQL, Heroku (*Postgres*), AWS (*RDS*, *EC2*); technical documentation (*Office*, *TeX*, *Inkscape*, *GIMP*).
- R&D Engineer in Simulation and Optimization** 2018  
**Benjamin Muyl Design Sarl** Auray, France
- 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.
- 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 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.
- 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 for adaptive control course within European Embedded Control Institute.
- 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	<table><tr><td><b>Kim-Phuc Tran</b></td><td><i>Associate Professor in Automation and Industrial Informatics</i></td></tr><tr><td>Email: kim-phuc.tran@ensait.fr</td><td>École Nationale Supérieure des Arts et Industries Textiles</td></tr><tr><td>Phone: +33 (0)3 20 25 89 60</td><td>2 allée Louise et Victor Champier, 59056 Roubaix, France</td></tr><tr><td><b>Ioan-Doré Landau</b></td><td><i>Emeritus Research Director at National Centre for Scientific Research</i></td></tr><tr><td>Email: ioan-dore.landau@gipsa-lab.fr</td><td>Grenoble Images Parole Signal Automatique Laboratoire</td></tr><tr><td>Phone: +33 (0)4 76 82 63 91</td><td>11 rue des Mathématiques, 38400 Saint-Martin-d’Hères, France</td></tr></table>			<b>Kim-Phuc Tran</b>	<i>Associate Professor in Automation and Industrial Informatics</i>	Email: kim-phuc.tran@ensait.fr	École Nationale Supérieure des Arts et Industries Textiles	Phone: +33 (0)3 20 25 89 60	2 allée Louise et Victor Champier, 59056 Roubaix, France	<b>Ioan-Doré Landau</b>	<i>Emeritus Research Director at National Centre for Scientific Research</i>	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
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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>														