

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*)

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