

# Vuong V. Trinh

Process Control and Optimization

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EXPERIENCE	<b>Associate Researcher in Industrial Automation and Artificial Intelligence</b> since 2019 <b>Dong A University Research Institute</b> Da Nang, Vietnam <ul style="list-style-type: none"><li>• 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;</li><li>• Familiar with Python (<i>Flask</i>, <i>Pandas</i>), JS (<i>Highcharts</i>), SQL, Heroku (<i>Postgres</i>), AWS (<i>RDS</i>, <i>EC2</i>); technical documentation (<i>Office</i>, <i>TeX</i>, <i>Inkscape</i>, <i>GIMP</i>).</li></ul>
	<b>R&amp;D Engineer in Simulation and Optimization</b> 2018 <b>Benjamin Muyl Design Sarl</b> Auray, France <ul style="list-style-type: none"><li>• Work with Benjamin Muyl (INEOS TEAM UK) on optimal control of sail yachts with direct collocation;</li><li>• Contribute to the software <i>META</i> by upgrading from Java / Matlab to Python using symbolic framework;</li><li>• Deploy Python (<i>CasADi</i>), version management (<i>Git</i>), production tools (<i>Bash</i>) and unit-tests.</li></ul>
	<b>R&amp;D Engineer in Process Control and Optimization</b> 2014–2017 <b>Commissariat à l'Énergie Atomique et aux Énergies Alternatives</b> 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. <ul style="list-style-type: none"><li>• Develop advanced model predictive control strategies, e.g. explicit constrained control and hierarchical distributed coordination, via machine learning, mathematical optimization and numerical algorithms;</li><li>• Model and control of compression stations and cryogenic refrigerators using <i>Simcryogenics</i>; experiments with SBT's station 400W 1.8K and CERN's 18kW 4.5K LHC facilities;</li><li>• Real-time nonlinear constrained control for Stirling engine in solar thermodynamic power plant;</li><li>• Intensive use of Matlab and C (<i>CPLEX</i>, <i>ACADO</i>); familiar with PLC/DCS/SCADA.</li></ul>
	<b>Research Intern in Active Vibration Control</b> 2014 <b>Grenoble Images Parole Signal Automatique Laboratoire</b> Grenoble, France Supervisors: Ioan Doré Landau and Luc Dugard (CNRS/GIPSA-lab), on active vibration control. <ul style="list-style-type: none"><li>• Perform system identification, robust control design and experiments using Matlab and xPC Target;</li><li>• Laboratory instructor for adaptive control course within European Embedded Control Institute.</li></ul>
	<b>Industrial Intern in Production and Automation</b> 2011 <b>Yazaki Corporation</b> Hai Phong, Vietnam <ul style="list-style-type: none"><li>• Analyse technical specifications and devise suitable solution for automotive wire production conveyors;</li><li>• Setup control box, relays and inverters; program PLC and HMI; deploy AutoCAD, Step7 and WinCC.</li></ul>
EDUCATION	<b>M.S. Automation &amp; Control Engineering</b> , Université Joseph Fourier & Grenoble INP 2013–2014 Mention: <i>good (MiSCIT Program)</i>   GPA: 15/20   Rank: 3/18
	<b>B.S. Automation &amp; Control Engineering</b> , Hanoi University of Science and Technology 2007–2012 Mention: <i>good (Talented Engineer's Program)</i>   GPA: 3.17/4.00
AWARDS	<b>Excellence Master Fellowship</b> , LabEx PERSYVAL-Lab 2013
	<b>Vallet Scholarship for excellent academic performance</b> , Rencontres du Vietnam 2008
	<b>Double Prize in Physics (1st) and Maths (cons)</b> , Vietnam Mathematics & Youth Magazine 2007
LANGUAGES	Vietnamese ( <i>native</i> )   English ( <i>fluent: IELTS 6.5</i> )   French ( <i>basic</i> )

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>		