

Nasrulloh Ratu Bagus Satrio Loka

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SUMMARY

I am a postdoctoral researcher in The Machine and Human Intelligence research group, with Luigi Acerbi, at the University of Helsinki, Finland. My work focuses on amortized inference methods and their applications, especially in black-box optimization. My research interests include Bayesian optimization, deep neural networks, and their applications in science and engineering.

EDUCATION

- Ghent University** Belgium
PhD in Information Technology 2023
- Ph.D. Thesis: Bayesian Optimization for Engineering Design and Process Optimization
- Hiroshima University** Japan
Master Degree in Information Engineering 2019
- Master Thesis: Two-dimensional Neural Network for One-dimensional Data
- Brawijaya University** Indonesia
Bachelor Degree in Informatics 2016
- Degree Projects: Slum identification on high-resolution satellite imagery using Support Vector Machine

RELEVANT EXPERIENCE

- Machine and Human Intelligence research group** Finland
Postdoctoral Researcher 2024-present
- Working on Amortized inference method.
- Surrogate Modelling Research Group, IMEC-UGent** Belgium
Ph.D. Researcher 2019 - 2024
- Working on various engineering-related machine learning projects.
 - Involved in Twin ECS Project under European Union's Horizon 2020 Research and Innovation program.
 - Took part in Flanders AI Research program, working on data-efficient machine learning.
 - Assisting machine learning course lab activity and co-supervising master student thesis.
- Pacmann Academy** Online-Indonesia
Content developer and lecturer (part time) 2022
- Teaching on introduction to machine learning and advanced machine learning course.
 - Creating course material for advanced machine learning course.
- Geoinformatics Laboratory, Brawijaya University** Indonesia
Undergraduate Researcher 2015-2017
- Development of aerial imagery based oil palm tree counting software.
 - Research on blending high resolution optical sensor and LiDAR data to detect living creatures.
 - Tutored on semi automatic satellite imagery classification using QGIS.

Basic Computing Laboratory, Computer Science Faculty, Brawijaya University Indonesia
Algorithm and Data Structure Lab activity assistant 2014

- Composed lab activity materials.
- Tutored the theory and programming practice on Algorithm and Data Structure using Java.
- Assessed student's performance on lab activities.

Basic Computing Laboratory, Computer Science Faculty, Brawijaya University Indonesia
Basic Programming Lab activity assistant 2013

- Delivered basic programming tutorial using C programming language.
- Assessed student performance on lab activities, based on laboratory's tutorial book exercises.



Indonesian Agency for Meteorology, Climatology and Geophysics Indonesia
Student Intern 2013

- Data scrapping and software development for wind vector and sea surface temperature data visualization using GrADS and C#
- Rainfall data entry from rainfall observation post in East Java.

PUBLICATION

- N. Loka**, M. Ibrahim, I. Couckuyt, I. Van Nieuwenhuyse, and T. Dhaene. 2023. *Cheap-Expensive Multi-Objective Bayesian Optimization for Permanent Magnet Synchronous Motor Design*. Engineering with Computers Journal
- N. Loka**, N. Mejía, S. Ortiz, S. Gurumurthy, A. Monti, J. Rigola, C. Oliet, T. Dhaene, I. Couckuyt. 2023. *Heat Exchanger Surrogates for a Vapor Compression System*. 15th International Modelica Conference (accepted, oral).
- N. Loka**, I. Couckuyt, F. Garbuglia, I. Van Nieuwenhuyse, D. Spina, and T. Dhaene. 2022. *Bi-objective Bayesian Optimization with Cheap and Expensive Cost Functions*. Engineering with Computers Journal.
- N. Loka**, S. Gurumurthy, B. Amevor, A. Monti, T. Dhaene, I. Couckuyt. 2022. *Surrogate Modelling of Dynamic Phasor Simulations of Electrical Drives*. IECON 2022 (oral)
- Jordens, J., Van Doninck, B., **Satrio, N. R. B.**, Hernandez, A. M., Couckuyt, I., Van Nieuwenhuyse, I., & Witters, M. 2022. *Optimization of Plasma-Assisted Surface Treatment for Adhesive Bonding via Artificial Intelligence*. 2nd International Conference on Industrial Applications of Adhesives (oral)
- N. Loka**, M. Kavitha, and T. Kurita. 2019. *Hilbert Vector Convolutional Neural Network : 2D Neural Network on 1D Data*. ICANN2019 (poster)

SOFTWARE

- Berkeley, J., Moss, H. B., Artemev, A., Pascual-Diaz, S., Granta, U., Stojic, H., Couckuyt, I., Qing, J., **Loka, N.**, & Picheny, V. 2023. *Trieste: Efficiently Exploring The Depths of Black-box Functions with TensorFlow*. ( Github link)
- Loka, N.** 2023. *Bayesian Optimization on DASH: Ask tell interface for Adhesive Bonding Optimization Problem* ( Gitlab link)

SKILLS

Programming Language	Python, C#, Java
Libraries	NumPy, SciPy, PyTorch, Tensorflow, Trieste (contributor), Plotly Dash, OpenCV, GDAL
Other	LaTeX, Git

COURSES AND CERTIFICATION

Gaussian Process and Uncertainty Quantification Summer School <i>The University of Sheffield. Sheffield, United Kingdom.</i>	<i>2022</i>
Nordic Probabilistic AI Summer School <i>Norwegian University of Science and Technology. Virtual.</i>	<i>2021</i>
Deep Bayes 2019, Summer school on Deep Learning and Bayesian Methods <i>National Research University Higher School of Economics. Moscow, Russia.</i>	<i>2019</i>
IBM Certified Solution Designer, Object Oriented Analysis and Design <i>Malang, Indonesia.</i>	<i>2013</i>

TALKS

Introduction to Bayesian Optimization <i>ICATAM FTMM Universitas Airlangga</i>	Online-Indonesia <i>2022</i>
Introduction to Python <i>Indonesian Student Association in Belgium (PPI Belgia)</i>	Virtual <i>2022</i>