CURRICULUM VITAE

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Adirek Baisukhan, Ph.D.
ดร. อดิเรก ใบสุขันธ์

Education:

2020	**Ph.D. (IE)**, Doctor of Philosophy (Industrial Engineering) Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand **Dissertation:** Analysis of Surface Integrity of Friction Stir Welded 7075-T651 Aluminum Alloy After Deep Rolling and Heat Treatment Process
2015	**M.Eng. (IE)**, Master of Engineering (Industrial Engineering) Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand **Thesis:** Analysis of Residual Stress Level in Gas Tungsten Arc Welding Using Finite Element Analysis
2004	**B.Eng. (IE)**, Bachelor of Engineering (Industrial Engineering) Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand
2000	High school, The Prince Royal's College, Chiang Mai, Thailand

Work Experiences:

2022 – Present	Lecturer, Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand
2022 – Present	Instructors Responsible for a Curriculum of Robotics Engineering and Artificial Intelligence Program, Faculty of Engineering, Chiang Mai University, Chiang Mai, Thailand
2022 – Present	Program Instructors of Industrial Design Program, Faculty of Architecture, Chiang Mai University, Chiang Mai, Thailand
2020 – 2022	Instructors Responsible for a Curriculum of Materials Engineering at School of Science, Mae Fah Luang University, Chiang Rai, Thailand
2020 – 2022	Lecturer, School of Science, Materials Engineering Program, Mae Fah Luang University, Chiang Rai, Thailand

2010 – 2015	Own Business, Tutorial School, Phrae, Thailand
2004 – 2010	Engineer of Machining Center Operation, Coil Division, Fujikura Electronics* (Thailand) Ltd., Lamphun, Thailand

*Previous Name: LTEC Ltd. Fujikura Group (Lanna Thai Electronic Components)

Research Project and Consultant Experiences:

2022 – Present	Researcher at Advanced Manufacturing and Management Technology Research Center (AM^2Tech), Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University, Thailand
2022 – Present	Head of Research Project, "Development of Axial Force Control System of Friction Stir Welding for Smart Manufacturing and Automation" funded by Fundamental Fund 2023 (FF 2566), Thailand Science Research and Innovation (TSRI), Project No. 4274640
2022 – Present	Researcher, "The Combustion modeling of High CaO Lignite in Mea Moh Power Plant Unit-14 (MM-T14)" funded by Electricity Generating Authority of Thailand (EGAT)
2022 – Present	Researcher, "Development of Suitable Shielding Device for Hot-wire Plasma Welding for Additive Manufacturing" funded by Research to Technology Transformation : RT^2 Northern Science Park, Chiang Mai
2022	Specialist, "The Improving the Work Efficiency of Mon Khao Kaew Pottery Community Enterprise, Lampang Province" funded by Tech Transfers to Community, Area-based Innovation for Community, Northern Science Park, Chiang Mai
2021 – 2022	Researcher, "Educational Status of the Knowledge Institutes (Analysis of Problems and Gaps in Knowledge Transfer and Technology), Case Studies of Ready-to-Use Technology Transfer and Investment of Technology in the Agricultural and Food Industries" funded by Thailand Science Research and Innovation (TSRI)
2021 – 2022	Specialist, "Integrated Subdistrict Economic and Social Upgrading Project (1T1U) of Mae Fah Luang University at Huaisak Subdistrict" funded by Ministry of Higher Education, Science, Research and Innovation
2021 – 2022	Specialist, "Development of Production Process and Quality Control of Shredded Pork Products" funded by Industrial Research and Technology Capacity Development Program (IRTC), Mae Fah Luang Intellectual Property Management and Innovation Division (MFii), Chiang Rai
2021 – 2022	Specialist, "Development of Production Process and Packing of Korean Chicken Sauce Using Technology to Meet the Requirements of the Food and Drug Administration." funded by Industrial Research and Technology Capacity Development Program (IRTC), Mae Fah Luang Intellectual Property Management and Innovation Division (MFii), Chiang Rai, Thailand
2021	Specialist, "Low-Cost Automation for Manufacturing at Ban Guan Pottery, Chaing Mai" funded by Department of Industry Promotion

2021	Specialist, “Low-Cost Automation for Manufacturing at Mon Khao Kaeo Pottery, Lampang” funded by Department of Industry Promotion
2021	Consultant, Chiang Rai Hop Yard Company, Chiang Rai
2021	Specialist, “Process Transform, ITC at Mon Khao Kaeo Pottery, Lampang” funded by Department of Industry Promotion
2019 – 2020	Specialist, “The Development of a Prototype for an Appropriate Production System with Innovation and IOT (EE-09-915)” funded by Energy Policy and Planning Office, Ministry of Energy
2014 – 2020	Researcher at Advanced Manufacturing Technology Research Center (AMTech), Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University, Thailand
2018 – 2019	Researcher, “Development of Online Production Tracking Systems”, funded by Industrial Research and Technology Capacity Development Program (IRTC), Northern Science Park, Chiang Mai
2018 – 2019	Researcher, “Design and Development of Thermal Imaging Camera for Operation Analysis of Coal Combustion Steam Boiler of Mae Moh Power Plant” Research and Development for Industry funded by National Science and Technology Development Agency (NSTDA)
2017 – 2018	Researcher, “Analysis of Heat Flux Sensor of Coal Combustion Steam Boiler” Research and Development for Industry funded by National Science and Technology Development Agency (NSTDA)
2016 – 2018	Researcher, “Development of Pulverized Coal Combustion Steam Boiler Wall Cleaning System with Automatic High-Pressure Washer of Mae Moh Power Plant Unit 11” funded by Electricity Generating Authority of Thailand (EGAT)
2016 – 2018	Researcher, “Fatigue Crack Prevention of Bone Fixation Plate by Applying Deep Rolling Process”, Project Code: 347586 funded by National Research Council of Thailand (NRCT)
2016 – 2018	Researcher, “Development and Biomechanical Assessment of Bone Fixation Parts for Small Animal”, Project Code: 347115 funded by National Research Council of Thailand (NRCT)
2016 – 2017	Research Assistant, “Deep Rolling Process Analysis of TIG Welding Workpiece using Finite Element Analysis” funded by Chiang Mai University, Thailand
2013 – 2014	Research Assistant, “Analysis of Welding Strength and Residual Stress Level from Gas Tungsten Arc Welding Process Using Robotic Arm” funded by Chiang Mai University, Thailand

Publications:

2022 Naksuk, N., **Baisukhan, A.**, Nakkiew, W. (2022). "A New Design of Slag Deposition Measurement System of Pulverized Coal Combustion Steam Boiler in Electricity Generating Power Plant"
(Submitted to Engineering Journal)

2022 Plangsrinont, T., Nakkiew, W., **Baisukhan, A.** (2022) "Simulation and Experiment of Water Cannon Cleaning System for Tangentially Fired Pulverized-Coal Boiler Based on Discrete Phase Model"
(Submitted to Engineering and Applied Science Research)

2022 **Baisukhan, A.**, Nakkiew, W. (2022). "Prediction of Axial Force on Dissimilar Aluminum Alloys Friction Stir Welding Using Design of Experiment" *Solid State Phenomena* (In press)

2022 Kaewkham, P., Nakkiew, W., **Baisukhan, A.** (2022) "Mechanical Property Enhancement of Dissimilar AA6061-T6 and AA7075-T651 Friction Stir Welds Coupled with Deep Rolling Process" *Materials*, Vols. 15(18), 6275

2022 Chukeatirote, E., Wisittipanit, N., **Baisukhan, A.** (2022) "FSALE: Fast Decision-Aiding Tool in the Investigation of *Salmonella Enterica* Genome Assemblies" *The 3rd International Conference on Decision Aid Sciences and Applications, Chiang Rai, Thailand, March 23-25, 2022.*, pp. 460-464

2022 **Baisukhan, A.**, Nakkiew, W., Wisittipanit, N. (2022). "Optimization of Tungsten Inert Gas Welding Process Parameters for AISI 304 Stainless Steel" *Defect and Diffusion Forum*, Vols. 417, pp. 23-28

2021 Wisittipanich, W., Phoungthong, K., Srisuwannapa, C., **Baisukhan, A.**, Wisittipanit, N. (2021). "Performance Comparison between Particle Swarm Optimization and Differential Evolution Algorithms for Postman Delivery Routing Problem" *Applied Sciences*, Vols. 11, 2703

2021 Wisittipanit, N., **Baisukhan, A.**, Srisuwannapa, C. (2021). "Comparisons of VRP Optimization Algorithmic Methods for the Optimal Routing of Multiple Delivery Vehicles with Time Constraint" *International Journal of Engineering Sciences*, Vols. 13(4), pp. 131-140

2020 Srisuwannapa, C., Nuchnat, K., Jantakul, N., Tabtim, K., Wisittipanit, N., Siriwat, P., **Baisukhan, A.** (2020). "Simulation for Solving Bottleneck Problem in Light-soaked Divider Mechanic production line" *Proceedings of 5th World Congress on Engineering and Application (WCEA – 2020), Bangkok, Thailand, December 14-16, 2020.* Serial No. 16, pp. 122

2020 Rauch, E., Unterhofer, M., Nakkiew, W., **Baisukhan, A.**, Matt, D.T. (2020). "Potential of the Application of Additive Manufacturing Technology in European SMEs" *Chiang Mai University Journal of Natural Sciences*, Vols. 20(2), e2021023

2020 **Baisukhan, A.**, Nakkiew, W. (2020). "Effects of Friction Stir Welding Parameters of Dissimilar Aluminum Alloys on Residual Stress and Microhardness" *IOP Conference Series: Materials Science and Engineering*, Vols. 895(1), 012001

2019	**Baisukhan, A.**, Nakkiew, W. (2019). "Sequential Effects of Deep Rolling and Post-Weld Heat Treatment on Surface Integrity of AA7075-T651 Aluminum Alloy Friction Stir Welding" *Materials*, Vols. 12(21), 3510
2018	**Baisukhan, A.**, Nakkiew, W. (2018). "Influence of Deep Rolling Process Parameters on Surface Residual Stress of AA7075-T651 Aluminum Alloy Friction Stir Welded Joint" *Materials Science Forum*, Vols. 939, pp. 23-30
2018	**Baisukhan, A.**, Nakkiew, W. (2018). "Effects of Deep Rolling on Surface Residual Stress and Microhardness of JIS SS400 MIG Welding" *Materials Science Forum*, Vols. 939, pp. 31-37
2016	Limwongsakorn, S., Nakkiew, W., **Baisukhan, A.** (2016). "Finite Element Analysis Model of Corrosion Fatigue for TIG Welding Workpiece", *Key Engineering and Materials*, Vols. 707, pp. 154-158
2015	Limwongsakorn, S., Nakkiew, W., **Baisukhan, A.** (2015). "Residual Stress Predictive Model of TIG Welding Process Using Finite Element Analysis", *Applied Mechanics and Materials*, Vols. 799-800, pp. 428-433
2015	**Baisukhan, A.**, Nakkiew, W., Pitjamit, S. (2015). "Design of Experiment for Predicting Residual Stresses in Gas Tungsten Arc Welding Process", *Industrial Engineering, Management Science and Applications 2015 Lecture Notes in Electrical Engineering*, Vols. 349, pp. 77-84
2015	**Baisukhan, A.**, Nakkiew, W. (2015). "Finite Element Analysis of Residual Stress Level Prediction for TIG Welding Process", *Applied Mechanics and Materials*, Vols. 752-753, pp. 500-504

Academic Reviewer:

2022	Pure and Applied Chemistry International Conference 2023 (PACCON 2023), Material Chemistry and Nanotechnology, January 20-21, 2023, Mae Fah Luang University, Chiang Rai, Thailand *Organizer: Chemical Society of Thailand under the Patronage of Professor Dr. Her Royal Highness Princess Chulabhorn Krom Phra Srisavangavadhana and Mae Fah Luang University*
2022	The 1st International Symposium on Industrial Engineering and Automation (ISIEA), Managing and Implementing the Digital Transformation (Papers will be published as Conference Proceedings in Springer – Lecture Notes in Networks and Systems), June 21-22, 2022, Bozen-Bolzano, Italy *Organizer: Free University of Bozen-Bolzano, Bolzano, Italy*

Invited Events:

2022	Committee, FIRST®Tech Challenge Thailand Season 2022-2023, a robotics competition for secondary students at The Prince Royal's College School, Dec 7-9, 2022, Chiang Mai, Thailand
2022	Special Lecturer, Subject "1112305 Degradation and Failure of Materials" "1112213 Engineering Statistics" and "1112212 Materials Science and Engineering 2" 1st Semester, Academic Year 2022 at Mae Fah Luang University, Chiang Rai, Thailand
2022	Committee, FIRST®Tech Challenge Thailand Season 2021-2022 FREIGHT FRENZY, a robotics competition for secondary students at The Prince Royal's College School, Mar 23-26, 2022, Chiang Mai, Thailand
2022	Commencement Ceremony Committee, School of Science, at Mae Fah Luang University, Feb 11-14, 2022, Chiang Rai, Thailand
2021	Special Lecturer in English Program, Subject "Physic" at Samakkhi Witthayakhom School, MFU Pre-University Project, Jun - Oct, 2021, Chiang Rai, Thailand
2021	Committee, Selection of Entrepreneurs to Participate in Industrial Research and Technology Capacity Development Program (IRTC) at Mae Fah Luang University, Feb 2, 2021, Chiang Rai, Thailand
2020	Special Lecturer, Topic "Statistics for Social Science" at Mae Fah Luang University, Nov 27, 2020, Chiang Rai, Thailand
2018	Special Lecturer, Topic "Best Practices and Trends in Industries: Overview of Robotics" at Sirinart Garden, Sep 6, 2018, Chiang Mai, Thailand

Robotics & Artificial Intelligence Experiences:

2022	Setup collaborative robot (brand: Dobot model: CR3) and SCARA robot (brand: Dobot model: M1) with equipment for teaching in courses related to robotics laboratory at Robotics Engineering and Artificial Intelligence Program, Faculty of Engineering, Chiang Mai University
2020	Consultant of setup KUKA robot model: KR16 L6 with equipment for Department of Mechanical Engineering, Faculty of Engineering, University of Phayao, Thailand, Oct 5-6, 2020
2020	Experienced in using welding robot arm for Plasma Arc Welding of AISI 316 stainless steel with AI for real-time parameters adjustment, Brand: ABB, Model: IRB 1520ID at National Metal and Materials Technology Center (MTEC), Pathum Thani, Thailand
2019 – 2020	Specialist, "The Development of a Prototype for an Appropriate Production System with Innovation and IOT (EE-09-915)" funded by Energy Policy and Planning Office, Ministry of Energy
2019	Training on installation, operation and safety of robot with Cebora welding machine at Cebora S.p.A. (Headquarter), Bologna, Italy
2019	Observational study of robotics using in industrial 4.0 at The Institute for Machine Tools and Industrial Management (iwb), Technical University of Munich, Munich, Germany

2019 Observational study of artificial intelligence and machine learning in industrial 4.0 at NOI Techpark, Alto Adige, Bolzano, Italy

2019 Training on setup, operation and safety of collaborative robot, Brand: Universal Robot, Model: UR10 and UR3 at Smart Mini Factory, Laboratory for Industry 4.0, Free University of Bolzano, Bolzano, Italy

2019 Consultant of setup KUKA robot model: KR16 L6 with equipment for Department of Mechanical Engineering, Faculty of Engineering, University of Phayao, Thailand

2018 Training on laser materials joining technology using KUKA robot at National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), Nov 20, 2018, Pathum Thani, Thailand

2018 Special Lecturer, Topic "Best Practices and Trends in Industries: Overview of Robotics" at Sirinart Garden, Sep 6, 2018, Chiang Mai, Thailand

2018 Setup KUKA robot model: KR16 L6 with equipment for teaching in courses related to the modern manufacturing industry at Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University, Thailand

2017 Training on setup and system integration of KUKA robot with certificated by Electrical and Electronics Institute, Dec 19-20, 2017, Bangkok, Thailand

2015 Experienced in using welding robot arm for MIG welding of low carbon steel SS400, Brand: Panasonic, Model: TM-1400GIII

2013 Experienced in using welding robot arm for TIG welding of AISI 304 stainless steel, Brand: OTC Daihen, Model: Almega AX-V6

Prototype Automation Machine:

2021 **Baisukhan, A.**
"Automatic pork shredder"
This machine design for shredding pork and alternative meats to produce "hand pulled" look product and reduce manual labor. Batch shreds up to 10 kg of product in 1-5 minutes.

2021 **Baisukhan, A.**, Nakkiew, W.
"Semi-Automatic Soil Thresher for Pottery Industry"
This machine is used for soil thresher and mixing that will produce suitable clay for making pottery product and reduce manual labor. Capacity of clay volume up to 20L in 5-10 minutes.

2021 **Baisukhan, A.**, Nakkiew, W.
"Low-Cost Automation System for Pottery Industry"
This machine is used to reduce work fatigue and increase productivity. The design is easy to use and safe for the elderly.

2018 **Baisukhan, A.**
"Fatigue Testing Machine"
This machine using a pneumatic system to provides 3-point or 4-point bending force (tension-tension or compression-compression) with closed-loop force control and test frequency up to 5 Hz

2016 **Baisukhan, A.**

"High-Pressure Hydraulic Supply Unit for Deep Rolling Tool"

This machine supplies high-pressure hydraulic oil using a supercharging system which can do a maximum pressure of 400 bar with a pressure accumulation system and electric control system

2014 Limwongsakorn, S., **Baisukhan, A.**

"Fatigue Testing Machine"

This machine provides push-pull axial force testing (tension-compression) with constant displacement under liquid solution chamber at room temperature and test frequency up to 5 Hz

Exchange Experiences:

2019 Researcher Exchange SME 4.0 Program, "Smart Manufacturing and Logistics for SMEs in an X-to-order and Mass Customization Environment" at Faculty of Science and Technology, Free University of Bozen-Bolzano, Bolzano, Italy, April 5, 2019 to August 9, 2019 funded by the European Union's Horizon 2020 R&I programme under the Marie Skłodowska-Curie grant agreement No 734713

2003 Undergraduate student exchange, "The 10th Tri-University Joint Seminar & Symposium" at Faculty of Bioresources, Mie University, Mie, Japan, October 17, 2003 to October 30, 2003 funded by Faculty of Engineering, Chiang Mai University, Thailand

Teaching Experiences:

2022 – Present Teaching at Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University in Industrial Robotics (IE 447), Engineering Mechanic (ENGR 107), Industrial Metallurgy (IE 210) for undergraduate student

2020 – 2022 Teaching at School of Science, Mae Fah Luang University in Engineering Drawing, Engineering Statistics, Materials Science and Engineering, Materials Selection and Design, Mechanics of Materials, Materials Manufacturing, Workshop Skills, Materials Behavior and Properties Testing, Fundamentals of Composite Materials, Principles of Physics for undergraduate student

2021 Special Lecturer in English Program, Subject "Physic"
at Samakkhi Witthayakhom School, MFU Pre-University Project,
Jun - Oct, 2021, Chiang Rai, Thailand

2019 – 2020 Teaching Assistant at Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University in Precision Manufacturing Systems (IE 752), for graduate student, 112 hours of exercise and laboratory

2017 – 2018 Teaching Assistant at Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University in Engineering Materials (ENGR 103), for undergraduate student, 112 hours of exercise and laboratory

2015 – 2016 Teaching Assistant at Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University in Metal Forming (IE 417), for undergraduate student, 112 hours of exercise and laboratory

2010 – 2015 Teaching in Mathematics, Physics, Fundamentals of Engineering, for high school student, 6 years of exercise (Own Business)

Supervision of Students:

2012 – Present Supervision and co-supervision of more than 25 bachelor and master students in field of advanced manufacturing processes, materials improvement, automation and finite element analysis

Scholarship:

2017 – 2019 STEM Workforce (Science, Technology, Engineering, Mathematics) Research and Development for Industry funded by National Science and Technology Development Agency (NSTDA), Grant agreement no. SCA-CO-2560-3549-TH and SCA-CO-2561-6119-TH

Languages Skills:

Thai: Native language
English: Upper Intermediate (IELTS Score 6.5; CEFR Level B2)
Italian: Elementary (CEFR Level A2)

Expert Fields:

Robotics, automation
Industry 4.0 and smart manufacturing
Advanced and additive manufacturing processes
Surface treatment and fatigue of material

Computer Skills:

Microsoft: DOS, Windows, Office (Word, Excel, Power Point, Visio, Access)
Simulation Software: ANSYS (Structural, Thermal, Explicit, Fluid Flow), Arena, Tecnomatix
CAD & CAM Software: SolidWorks, Solid Edge, Siemens NX, CATIA, MasterCAM, AutoCAD
Statistical & Computational Software: Minitab, MATLAB, RapidMinor
Language Software: Visual Basic, C, C++, Python
Robot Software: RoboDK, SprutCAM, KUKA Sim Pro
Open Source: Linux (Ubuntu, Debian, CentOS)
PLC Software: Omron (CX-Programmer)

Machine and Instrument Skills:

Manual Machine Operated: milling, lathe, grinding, planer, boring, cutting
CNC Machine: Fanuc, HAAS (5-Axis), HOWA (4-Axis), Brother, Bridgeport, Mitsubishi Control
Manual Welding Operated: MMA, MIG, TIG
Automate Welding: Friction stir welding, Laser TIG hot wire, Plasma arc welding
Collaborative Robot: Universal Robot UR10, UR3, Dobot CR3
Industrial Robot: KUKA KR16 L6, ABB IRB 1520ID, Dobot MG400, Dobot M1
3D Printing: 3D Systems, MakerBot
Measuring Device: digital caliper, dial calipers, dicrometer, CMM Mitutoyo
Hardness Tester: Brinell, Rockwell, Vicker, Knoop
MTS Material Testing Machine: tension and compression tests
X-Ray Diffaction Machine: Stresstech Xstress 3000
Deep Rolling Machine: Ecoroll HG6
PLC: Omron, Mitsubishi
Internet of Things Device: Arduino, Raspberry Pi
High-Speed Infrared Thermography Camera: Infratec ImageIR 8300

References:

1) Assistant Professor Dr. Wasawat Nakkiew
   Department of Industrial Engineering, Faculty of Engineering, Chiang Mai University, Thailand
   239, Huay Kaew Road, Muang District, Chiang Mai, Thailand, 50200
   Mobile: +66 (0) 88 951 4261 E-Mail: wasawat@eng.cmu.ac.th

2) Dr. Nuttachat Wisittipanit
   School of Science, Mae Fah Luang University, Thailand
   333, Moo 1, Thasud Sub-District, Muang District, Chiang Rai, Thailand, 57100
   Mobile: +66 (0) 82 195 7772 E-Mail: nuttachat.wis@mfu.ac.th