

Mike C. Chang, Ph.D.

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DATA SCIENCE / MANUFACTURING EXPERIENCE

University of Texas at San Antonio | San Antonio, Texas

Graduate Research Assistant - Data science research

2017/08 – Present

- Develop Prototypical Neural Network model for Transfer learning and Active learning.
- Event recognition machine learning by multi-factor with wavelet-analysis for *Schlumberger*[®].
- Designed Indoor Locating System with Multi-Stream RFID detection methods with *Eye Associates of South Texas*[®].

Graduate Teaching Assistant - Lecturer

2018/01 – 2021/01

- ME-3113: Measurements & Instrumentation
- ME-3293: Thermodynamics
- ME-1403: Engineering Practice and Graphics practices

National Taiwan University | Taipei, Taiwan

Mechatronic Engineer & Researcher at Micro Biomechatronic Lab

2015/12 – 2017/07

- Design a microchannel chip along with a micro-syringe pump and automated robot.
- Design 3-axis conveying stage integrated with UV indirect microscope design, micro channel chip design, and fabrication, Open CV image tracking and recognition, cloud controller, and IoT server build-up.

ASUSTeK Computer Inc. | Taipei, Taiwan

NPI Production Engineer at ASUS[®] Quality Assurance Center

2014/09 – 2015/08

- Serviced at New Product Introduction (NPI) division.
- Designed the very first sets of testing equipment for mobile devices and was responsible for introducing new product testing technology with corresponding field training. Also cooperate with worldwide EMS (Electronic Manufacturing Services) including *Quanta Computer*[®], *Pegatron Corp*[®], *Qisda Corp*[®], *Foxconn*[®] in managing supply chain, quality control, data analysis, production flow setup, and troubleshooting.

BIOMECHATRONIC EXPERIENCE

I initiated my exploration of biomechatronic technology with a special project titled "Design of Micro-Electronic-Mechanical Systems - A Study on the Imitation Arthropod Micro-mechanical Walking Devices." I skillfully employed computer-aided design software, such as AutoCAD and ANSYS, to demonstrate and simulate MEMS design for thermal expansion of actuators. My graduate studies at (NTU) National Taiwan University's **Micron Manufacturing Technology Lab** furthered his education, where I:

- Design 3D-2D thermal conduction model using the Forward Time Central Space (FTCS) algorithm, allowing for online estimation of cutting tip temperature.
- Fabrication of inkjet printed thermal sensor.
- Master thesis published on journal paper as: Li, Kuan-Ming, Chi-Wen Chang, and Chia-Hao Chang. "Online cutting temperature prediction using ink-jet printed sensors and model order reduction method." *The International Journal of Advanced Manufacturing Technology* 120.3 (2022) doi: [10.1007/s00170-022-08900-2](https://doi.org/10.1007/s00170-022-08900-2)

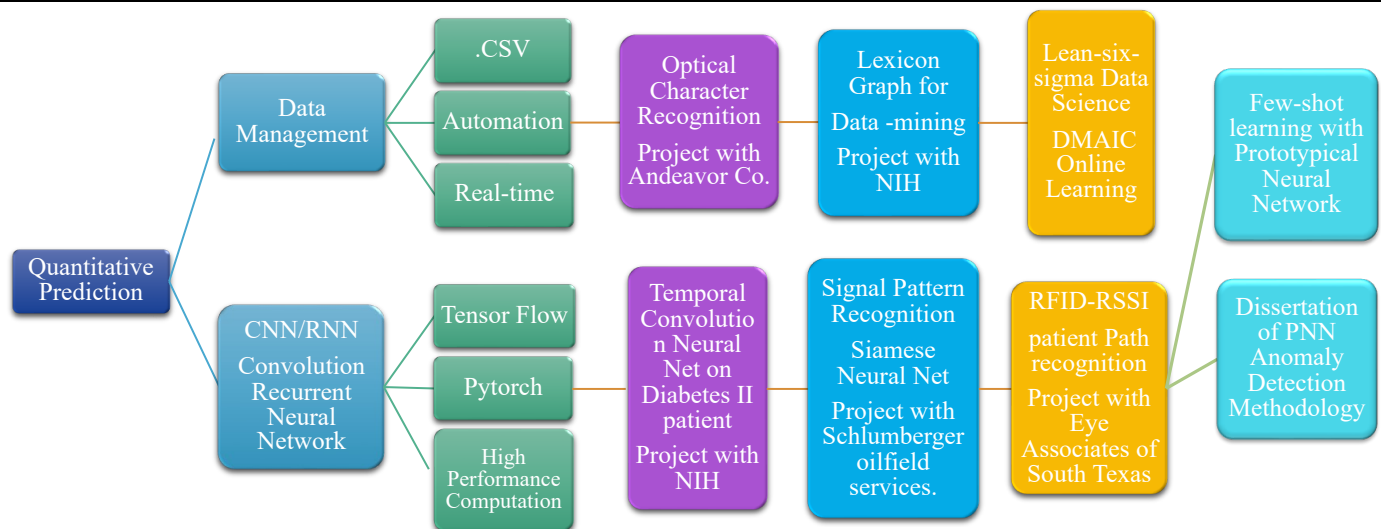
During my development as a researcher at NTU's **Biomechatronic Lab**, I honed his semiconductor fabrication skills, integrating microfluidic fabrication techniques with thermal systems in:

- Fabrication of 50 micron microscopy thermal-couple sensor.
- Conducting light spectrum analysis across the infrared to UV band.
- Developing portable genetic inspection chip fabrication in a clean room and automating DNA-PCR (Polymerase Chain Reaction).

RELATED SKILLS

- Data-driven Engineering
- Signal Process
- Minitab
- Pytorch
- Sensors
- Thermodynamics
- SolidWorks CAD
- Lecturing
- Thermal sensor/heater Microfabrication
- Infrared Photography
- Lab-on-a-chip
- New Product Introduction
- Quality System
- C++
- Microchip SoC
- Electrical Layout
- Mass Production
- Finite Element Analysis
- Thermal technology
- Micro-Electronic-Mechanical Systems (MEMS)
- COMSOL Multiphysics
- ANSYS
- 2D-3D thermal modeling
- Cutting tip temperature estimation
- Inkjet-printed thermal sensors
- Real-time cutting temperature prediction
- Microfluidics

DATA SCIENCE / ENGINEERING RESEARCH EXPERIENCE



EDUCATION

Ph.D. in Mechanical Engineering - University of Texas at San Antonio 2017/08 - 2023/12
Dissertation: Data-driven Process Flow Modeling and Optimization using Indoor RFID Locating System
Center for Advanced Manufacturing and Lean Systems, Advanced Data Engineering Lab

M.S. in Mechanical Engineering - National Taiwan University 2011/09 - 2013/06
Thesis: Applying Ink-jet Patterned Sensor in On-line Cutting Temperature Monitoring
Production System Simulation Lab, µMT Lab

CERTIFICATION

Lean and Six Sigma Green Belt Certificate
Center for Advanced Manufacturing and Lean Systems (CAMLs) at UTSA 2021/05
Credential ID: 2018-04-23-040

SELECT PUBLICATIONS / PRESENTATIONS

1. (Accepted) Mike C. Chang, Adel Alaeddini. "Few-shot Classification with Prototypical Neural Network for Hospital Flow Recognition under Uncertainty". *Network Modeling Analysis in Health Informatics and Bioinformatics* (2024)
2. (Reviewing) Mike C. Chang, Adel Alaeddini. "Anomaly Detection of Equipment Flow with Prototypical Neural Network". (2024)
3. (Reviewing) Mike C. Chang, Stanford Martinez, Hung-da Wan, Adel Alaeddini. "Rapid Deployment of Indoor Rooms Personnel Localization with Passive RFID in Healthcare Facility" *International Journal of Services Operations and Informatics* (2024)
4. Mike C. Chang, Syed Hasib Akhter Faruqui, Hung-da Wan, Adel Alaeddini. "Evaluation and Improvement of Student Learning Experience in Post-COVID World: A Lean Six-Sigma DMAIC Study." *International Journal of Mechanical Engineering Education* (2023)
5. Li, Kuan-Ming, Chi-Wen Chang, and Chia-Hao Chang. "Online cutting temperature prediction using ink-jet printed sensors and model order reduction method." *The International Journal of Advanced Manufacturing Technology* 120.3 (2022)
6. Chi-Wen Chang, Yen-Kun Lai, Ming-Tsung Hung." Design of Micro-Electronic-Mechanical-Systems - A study on the Imitation Arthropod Micro-mechanical walking devices." *NCU-HU Exchange Conference at Hiroshima University, Japan* (2009)