Curriculum Vitae

Decho Surangsrirat

+66 89-140-9461

decho.sur@nstda.or.th

EDUCATION

- **Ph.D. University of Miami, Coral Gables, Florida,**
  Biomedical Engineering, May 2011.

- **M.S. University of Miami, Coral Gables, Florida,**
  Biomedical Engineering, August 2008.

- **M.S. University of Miami, Coral Gables, Florida,**
  Electrical and Computer Engineering, May 2005.

- **B.Eng. Kasetsart University, Bangkok, Thailand,**
  Computer Engineering, April 2002.

RESEARCH INTERESTS

- Medical Data Analytics and Machine Learning
- Medical Device Standards and Development
- Behavioral Science in Healthcare

RESEARCH GRANTS (PI)

- *Platform for Surveillance, Prevention, Care, and Control of Diseases with a Focus on Primary Care Data Integration,* National Science and Technology Development Agency **(1-year 15,690,000 THB)**, 2024.
- *Development of a Prototype Process Analysis Technology System for Research and Production of Pharmaceutical Active Ingredients,* National Science and Technology Development Agency **(1-year 5,129,000 THB)**, 2024.
- *Implementation of Thermal Product system for end-to-end process analytical technology for Deferasirox manufacturing plant,* Health System Research Institute **(2-year 5,482,817 THB)**, 2023.
- *The Development of Thermal-Based Technique for Pharmaceutical and Medical Application – Phase 2 Development of a Prototype for Pharmaceutical Process Control,* Health System Research Institute **(2-year 6,929,475 THB)**, 2021.

- *The Development of Thermal-Based Technique for Pharmaceutical and Medical Application – Phase 1 Feasibility Study: in collaboration with University of Oxford and the Government Pharmaceutical Organization,* Health System Research Institute **(2-year 9,260,180 THB)**, 2019.
- *Chronic Kidney Disease Management Platform,* National Science and Technology Development Agency **(5-year 20,959,094 THB)**, 2019.
- *Wearable Device Firmware Design Development and Testing,* Naresuan University **(6-month 450,000 THB)**, 2019.
- *Automated Peritoneal Dialysis Machine – IEC Testing and Pilot Clinical Trial,* National Science and Technology Development Agency **(1-year 1,416,000 THB)**, 2018
- *Automated Peritoneal Dialysis Machine,* National Electronics and Computer Technology Center **(1-year 551,000 THB)**, 2018.
- *Driving Performance Station,* Office of the Permanent Secretary and ID Driver Company Limited **(1-year 2,166,000 THB)**, 2017.
- *Preclinical Validation & Evaluation of Breath Glucose Analyzer,* Health Innovision Company Limited **(6-month 800,000 THB)**, 2016.
- *Research on Medical Instrument for Applied Thai Traditional Medicine,* Excellent Center for Thai Traditional Medicine and National Electronics and Computer Technology Center **(1-year 1,000,000 THB – in cash and in kind)**, 2015.
- *Develop and Validate the Endoscopic Training System from Natural Rubber,* Thailand Research Fund **(1-year 657,000 THB)** 2014.
- *Advanced Endoscopy Training Model from Natural Rubber,* Thailand Research Fund **(1-year 350,000 THB)** 2013.
- *Advanced Rubber Mechanical Model for Training in Upper Endoscopy,* Thailand Research Fund **(1-year 142,000 THB)** 2012.
- *Mobile Tablet for Diagnosis of Parkinson's Disease,* National Electronics and Computer Technology Center **(1-year 250,000 THB)**, 2012.

PATENTS AND LICENSE FEES

- ThaiSook Wearable Integration Module – 431331 (จ1.010691)
    - *License Upfront Fee 64,200 THB (2024), Advance Design and Development Co., Ltd.*
    - *License Upfront Fee 64,200 THB (2025), Digitalk Co., Ltd.*
- Automated Peritoneal Dialysis and Related System – 2203002559 and Cassette for delivering fluids - 2203002558 (Both Petty Patents Pending)
    - *License Upfront Fee 421,000 THB (2023), Namwiwat Medical Corporation PCL*
- Non-Destructive Measurement Technique based on Thermal Approach for Water Content Determination in Pharmaceutical Application – 2201000454 (Patent Pending)
- ThaiSook Mobile Applications Version 1 – 386956 (จ1.008816)
- Cassette for Peritoneal Dialysis Fluids – 2002003084 (Design Patent Pending)
- System and process for classification of hand movements using sEMG signal – 2001002769 (Patent Pending)

- Automatic Height and Weight Measurement with Posture Detection – 1902004926 (Design Patent No. 83559)
- Firmware for automated health kiosk system – 377814 (ว1.8261)
- Automated peritoneal dialysis flow control device – 1802003074 (Design Patent No. 75487)
- Firmware for particulate matter sensor with the internet of things – 371394 (ว1.7806)
    - *License Upfront Fee 192,600 THB (2019), ID Drives Co., Ltd.*
- Device for hand and fingers rehabilitation - 1703001369 (Petty Patent No.15309)
- Breath analysis system for driving performance evaluation – 1703000403 (Petty Patent No.13839)
    - *License Upfront Fee 100,000 THB (2017), ID Drivers Company Limited*
    - *License Upfront Fee 214,000 THB (2021), ID Drives Company Limited*
- System and process for monitoring, analyzing, and detecting abnormalities in biosignals during sleep – 1701000573 (Patent Pending)
    - *License Upfront Fee 300,000 THB (2019), Naresuan University*
- Artificial gastrointestinal tract with movement detection system for training in endoscopy – 1501006010 (Patent Pending)
- Tremor analysis device for Parkinson's disease and related disorders screening – 1401005892 (Patent Pending)
- Artificial organ with force detection system for training in endoscopy – 1301005545 (Patent Pending)
- System and process for Parkinson's disease screening - 1201005092 (Patent Pending)

PUBLICATIONS

- **Surangsrirat, D.**, Asawaponwiput, W., Sri-iesaranusorn, P., Pruphetkaew, N., and Vichitkunakorn, P., 2025. Mobile App Engagement and Effective Weight Management. *Journal of Health Science and Medical Research*.
- **Surangsrirat, D.**, Srikun, O., Sangawitayakorn, C., Wannasetdecho, T., Puanglamjeak, M., Birdi, P., Kirkup, J. and Chana, K., 2024. Nondestructive Measurement Technique for Substandard Amoxicillin Based on Thermal Approach. *ACS Omega*.
- Wachiracharownong, A., Sri-iesaranusorn, P., **Surangsrirat, D.**, Leelaprute, P., Panyakaew, P. and Bhidayasiri, R., 2024. Parkinson's Disease Classification from Scanned Images of Spiral Drawings. IEEE First International Conference on Artificial Intelligence for Medicine, Health and Care (AIMHC), pp. 185-186, IEEE.
- Phuenpathom, W., Panyakaew, P., Vateekul, P., **Surangsrirat, D.** and Bhidayasiri, R., 2024. Residual effects of combined vibratory and plantar stimulation while seated influences plantar pressure and spatiotemporal gait measures in individuals with Parkinson's disease exhibiting freezing of gait. *Frontiers in Aging Neuroscience*, 15, p.1280324.

- Inchusri, T., **Surangsrirat, D.**, Kwanmuang, P., Poomivanichakij, P., Apiwatgaroon, P., Ongprakobkul, S., Kongchu, A., Klinpikul, A., Taneeheng, A., Pruphetkaew, N. and Thongseiratch, T., 2023. Association of Generation and Group Size With the Usage of a Mobile Health App in Thailand: Secondary Analysis of the ThaiSook Cohort Study. *Journal of Medical Internet Research*, 25, p.e45374.
- Sae-Lee, K., **Surangsrirat, D.**, Parlawong, C., Anawilkul, T.T., Assawachamrun, N., Boonbandan, P., Ladapongpuwat, P., Chupetch, B., Thongchai, S., Pruphetkaew, N. and Thongseiratch, T., 2023. Workout Logging Through an mHealth App for Weight Reduction Among Different Generations: Secondary Analysis of the MED PSU× ThaiSook Healthier Challenge. *JMIR Formative Research*, 7, p.e45298.
- Worasawate, D., Asawaponwiput, W., Yoshimura, N., Intarapanich, A. and **Surangsrirat, D.**, 2023. Classification of Parkinson's disease from smartphone recording data using time-frequency analysis and convolutional neural network. *Technology and Health Care*, pp.1-14.
- Asawaponwiput, W., Sriiesaranusorn, P., Mohchit, T., Thatphithakkul, N. and **Surangsrirat, D.**, 2022, November. Application of Machine Learning in Lifestyle: Weight-In Image Classification using Convolutional Neural Networks. In 2022 IEEE International Conference on Agents (ICA) (pp. 66-71). IEEE.
- Phuenpathom, W., Panyakaew, P., Vateekul, P., **Surangsrirat, D.**, Hiransuthikul, A. and Bhidayasiri, R., 2022. Vibratory and plantar pressure stimulation: Steps to improve freezing of gait in Parkinson's disease. *Parkinsonism & Related Disorders*, 105, pp.43-51.
- **Surangsrirat, D.**, Asawaponwiput, W., Yoshimura, N., Intarapanich, A. and Worasawate, D., 2022. Parkinson's Disease Classification from Data Collected Using Smartphone: A Review of the Literature. *Asian Medical Journal and Alternative Medicine*, 22(1), pp.50-58.
- **Surangsrirat, D.**, Bualuangngam, T., Sri-iesaranusorn, P., Chaiyaroj, A., Buekban, C., Thanawattano, C. and Poopitaya, S., 2022. Comparison of the wrist range of motion measurement between inertial measurement unit glove, smartphone device and standard goniometer. *Applied Sciences*, 12(7), p.3418.
- **Surangsrirat, D.**, Sri-Iesaranusorn, P., Chaiyaroj, A., Vateekul, P. and Bhidayasiri, R., 2022. Parkinson's disease severity clustering based on tapping activity on mobile device. *Scientific Reports*, 12(1), p.3142.
- **Surangsrirat, D.**, Sridhar, V., Srikun, O., Puanglamjeak, M., Birdi, P., Dumnin, S., Thanawattano, C. and Chana, K.S., 2022. Non-destructive measurement technique for water content in organic solvents based on a thermal approach. *RSC advances*, 12(10), pp.6181-6185.
- Sri-iesaranusorn, P., Trakarnkulphun, A., Chaiyaroj, A. and **Surangsrirat, D.**, 2021. Data-Driven Transmission Patterns of COVID-19 in ASEAN+ 6. *Asian Medical Journal and Alternative Medicine*, 21, pp.S9-S17.
- Traitanon, O., Boongerd, T., Dumnin, S., Buekban, C., Pongthornseri, R., Sampnyuth, S., Thanawattano, C. and **Surangsrirat, D.**, 2021. An Initial Report on Operability and Safety of A Domestic Automated Peritoneal Dialysis Machine in Thailand. *Asian Medical Journal and Alternative Medicine*, 21(2), pp.91-96.

- Sri-Iesaranusorn, P., Chaiyaroj, A., Buekban, C., Dumnin, S., Pongthornseri, R., Thanawattano, C. and **Surangsrirat, D.**, 2021. Classification of 41 hand and wrist movements via surface electromyogram using deep neural network. *Frontiers in bioengineering and biotechnology*, 9, p.548357.
- Phokaewvarangkul, O., Vateekul, P., **Surangsrirat, D.**, & Bhidayasiri, R. (2020). Deep learning approach for Parkinson's disease classification from facial expressions: A pilot feasibility study: 1423. *Movement Disorders*, 35.
- Chaiyaroj, A., Sri-Iesaranusorn, P., Buekban, C., Dumnin, S., Thanawattano, C., & **Surangsrirat, D.** (2019). Deep neural network approach for hand, wrist, grasping and functional movements classification using low-cost semg sensors. *In 2019 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)* (pp. 1443-1448). IEEE.
- **Surangsrirat, D.**, Dumnin, S., & Samphanyuth, S. (2019). Heart Rate, Skin Temperature and Skin Humidity and their Relationship to Accumulated Fatigue. *In 2019 3rd International Conference on Bio-engineering for Smart Technologies (BioSMART)* (pp. 1-4). IEEE.
- **Surangsrirat, D.**, Thanawattano, C., Pongthornseri, R., Dumnin, S., Anan, C., & Bhidayasiri, R. (2016, August). Support vector machine classification of Parkinson's disease and essential tremor subjects based on temporal fluctuation. *In 2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)* (pp. 6389-6392). IEEE.
- **Surangsrirat, D.**, Tongkratoke, A., Samphanyuth, S., Sununtachaikul, T., & Pramuanjaroenkij, A. (2016). Development in Rubber Preparation for Endoscopic Training Simulator. *Advances in Materials Science and Engineering*, 2016, Article ID 8650631, 8 pages.
- **Surangsrirat, D.**, & Intarapanich, A. (2015). Analysis of the meditation brainwave from consumer EEG device. *In SoutheastCon 2015* (pp. 1-6). IEEE.
- **Surangsrirat, D.**, Tongkratoke, A., & Pramuanjaroenkij, A. (2014). A rubber investigations for a gastroscopy training kit. *In Proceedings of the The 5th TSME International Conference on Mechanical Engineering*.
- Phutthachan, S., Suntisrivaraporn, B., & **Surangsrirat, D.** (2014). A framework for mapping Thai drugs using a pharmaceutical ontology extension of Snomed CT. *In 2014 11th International Joint Conference on Computer Science and Software Engineering (JCSSE)* (pp. 313-318). IEEE.
- **Surangsrirat, D.**, Intarapanich, A., Thanawattano, C., Bhidayasiri, R., Petchrutchatachart, S., & Anan, C. (2013). Tremor assessment using spiral analysis in time-frequency domain. *In 2013 Proceedings of IEEE Southeastcon* (pp. 1-6). IEEE.
- **Surangsrirat, D.**, & Thanawattano, C. (2012). Android application for spiral analysis in Parkinson's Disease. *In 2012 Proceedings of IEEE Southeastcon* (pp. 1-6). IEEE.
- **Surangsrirat, D.**, Deshpande, A. R., Surangsrirat, S., Tapia, M. A., & Zhao, W. (2011). A customized simulation system with computer integrated auto-evaluation function for upper endoscopy training. *Technology and Health Care*, 19(2), 79-90.
- **Surangsrirat, D.**, Tapia, M. A., & Zhao, W. (2010). Classification of endoscopie images using support vector machines. *In Proceedings of the IEEE SoutheastCon 2010 (SoutheastCon)* (pp. 436-439). IEEE.
- **Surangsrirat, D.**, Tapia, M. A., & Zhao, W. (2009). Computer Integrated Endoscopic Simulator with Nonlinear Distortion Correction System. *In Proceedings of the International Meeting on Simulation in Healthcare 2009*.

PROFESSIONAL CERTIFICATIONS

- Microsoft Certified Trainer (MCT), by Microsoft Corporation, 2009.
- Microsoft Certified Professional Developer (MCPD, Web Developer), by Microsoft Corporation, 2009.
- Microsoft Certified Technology Specialist (MCTS, .NET Framework and Web Application), by Microsoft Corporation, 2008.

PROFESSIONAL EXPERIENCE

- *Senior Researcher*, Assistive Technology and Medical Devices Research Center, January 2018 – Present.
- *Researcher*, National Electronics and Computer Technology Center, August 2011 – December 2017.
- *Computer Training Lab Manager*, University of Miami, Division of Continuing and International Education, January 2005 – July 2011.
- *Software Engineer*, Siamguru Co., Ltd., July 2002 – June 2003.
- *Programmer and Technical Support - Intern*, Teleinfo Media Co., Ltd., March 2001 – May 2001.

ACADEMIC EXPERIENCE

- *Microsoft Visual Studio .NET Instructor*, University of Miami, Division of Continuing and International Education, April 2009 – July 2011.
- *Lecturer*, University of Miami, Department of Computer Information Systems, January 2011 – May 2011.
- *Lecturer Assistant*, University of Miami, Department of Electrical and Computer Engineering, August 2006 – May 2008.
- *Teaching Assistant*, Kasetsart University, Department of Computer Engineering, November 2001 – March 2002.

COURSES TAUGHT

- Object-Oriented Programming in JAVA
- Introduction to C# Programming with Microsoft .NET
- Application Development Foundation – Microsoft .NET Framework
- Windows Form Application Development – Microsoft .NET Framework
- ASP.NET Application Development – Microsoft .NET Framework
- ADO.NET Application Development – Microsoft .NET Framework
- Design of Computer Languages
- Database Systems Design
- Computer Foundations