Chayut Wongkamthong

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Bangkok - 10500, Thailand

Education

- **Duke University** *Aug. 2019 - May 2021*
  M.S. DATA SCIENCE NC, USA
  - GPA: 3.97/4.00
  - Awarded Duke Scholarship from the Social Science Research Institute (SSRI), Duke University.

- **Chulalongkorn University** *May 2011 - Jun. 2015*
  BACHELOR OF ENGINEERING Bangkok, Thailand
  - GPA: 4.00/4.00
  - Awarded First Class Honors and the Medal of Excellence from Chulalongkorn University.
  - Awarded Bhumibol Scholarship from HM King Rama IX.

Experience

- **KASIKORN Business-Technology Group | KBTG [🌐]** *Feb 2022 - Present*
  Advance/Team lead - Data Scientist Bangkok, Thailand
  - **Technical Leader**: Supervise a team of data scientists in solving Banking industry challenges including credit scoring, collection optimization, financial product recommendation.
  - **Researcher**: Pioneer data science and optimization research for new product initiatives including dynamic pricing, asset valuation using satellite imagery, fraud and anomaly detection.
  - **Products involved**:
    * K PLUS: mobile banking app by Kasikorn Bank
    * MAKE by KBank: cloud pocket system for personalized money management
    * K-Property: a real estate platform designed to help customers with property-related financial needs

- **Social Science Research Institute (SSRI), Duke University [🌐]** *Jan. 2020 - Dec. 2021*
  Research Assistant NC, USA
  - **Supervisor**: Assistant Professor Olanrewaju M. Akande (SSRI and Statistical Science, Duke University)
  - **Research Topics**: Bayesian nonparametric methods for missing data imputation, Dirichlet process mixture models

- **Electrical and Computer Engineering (ECE) Department, Duke University [🌐]** *Jan. 2020 - Dec. 2021*
  Research Assistant NC, USA
  - **Supervisor**: Professor Vahid Tarokh (ECE, Duke University), Professor Ali Pezeshki (ECE, Colorado State University)
  - **Research Topics**: Radar signal processing, Statistical methods for object detection, Cluster analysis

- **PTT Exploration and Production Public Company Limited (PTTEP) [🌐]** *Jul. 2015 - Aug. 2019*
  Petroleum Engineer Bangkok, Thailand
  - **JV technical Leader with Chevron (2018)**: Supervised B8/32 oil field in the Gulf of Thailand.
  - **Researcher (2017)**: Implemented reservoir simulation (mathematical models to forecast production).
  - **Reservoir Engineer (2016)**: Optimized gas production in Arthit gas field (220 MMcf of gas production per day).

PROJECTS

- **MAKE by KBank Targeted Advertising** *Jan 2024 - Jun. 2024*
  Tools: Gradient Boosted Decision Trees (GBDT) - Python
  - Led a team of four to develop a GBDT model for targeted advertising of MAKE by KBank application.
  - Increased conversion rate by more than five times over traditional targeted advertising methods.

- **Best Time to Call Model and Optimization for Debt Collection Process** *May 2023 - Dec. 2023*
  Tools: Multi-armed bandit, Numerical Optimization - Python
  - Led a team of six to formulate the collection optimization task as a multi-armed bandit problem, implementing Top-Two Thompson Sampling to determine the best time to call each debtor.
  - Optimized the debt collection pipeline for Kasikorn Bank, increasing contact rates by over 16% relatively, leading to $10,000 in cost savings and an increase of over $1,100,000 in monthly debt collections.

- **Hierarchical Dirichlet Process Mixture of Multinomial Distributions Model** *Oct. 2020 - Dec. 2022*
  Tools: Bayesian nonparametric models, Missing data imputation - R [GitHub]
  - Developed a nonparametric Bayesian mixed membership method using hierarchical Dirichlet process.
  - Demonstrated an application in social science survey with missing data to analyze political ideology.

- **Data-Driven Improved Radar Object Detection** *Jan. 2020 - Dec. 2021*
  Tools: Deep learning, Signal processing - MATLAB, Python
  - Developed statistical methods for clutter representation and cancellation from radar signals.
  - Collaborated with Air Force Research Laboratory; Developed AI algorithms for radar object detection and compared them with radar engineering methods.
  - Authored a manuscript on radar clutter representation for the 2021 IEEE Radar Conference.
  - Authored a manuscript on using deep learning and computer vision techniques for target localization with radar signals for the 2022 IEEE Radar Conference.

- **Hierarchical Gaussian Process Model for Predicting Microbial Growth** *Aug. 2020 - May 2021*
  Tools: Hierarchical Gaussian Process model - Python [Web]
  - Collaborated with the Schmid Lab, Duke; applied HGP regression for microbial growth modeling.

- **Statistical and Machine Learning Methods for Imputing Ordinal Data** *Jan. 2020 - Nov. 2020*
  Tools: Missing data imputation, Generative Adversarial Networks (GANs) - R, Python [GitHub]
  - Analyzed missing data imputation methods (Dirichlet process models, MICE) for ordinal variables.
  - Performed statistical inference and evaluated distributional characteristics of imputed values.
  - Authored and published a manuscript in the Journal of Survey Statistics and Methodology (JSSAM).

- **Production Optimization Software: The Field State Model** *Jan. 2018 - Oct. 2018*
  Tools: Convex Optimization - MATLAB [Web]
  - Innovated a software to formulate the petroleum production system as a convex optimization problem.
  - Cooperated with asset managers; achieved over $640,000 gain in petroleum production in 2018.
  - Published a manuscript and presented it at the 2018 Asia Pacific Oil and Gas Conference and Exhibition (APOGCE), Australia.

- **Slimhole Repeat Formation Tester (SRFT) Successfulness Predictor** *Nov. 2017 - Jul. 2018*
  Tools: Supervised Learning - Python
  - Led a team of five; identified reservoir parameters associated with the success rate of SRFT operation.
  - Developed an ML model that helped reduce the failure rate by 30%; saved $120,000 from downtime.

- **Statistical Model for Reservoir Sonic Property** *Oct. 2016 - Apr. 2017*
  Tools: Generalized Linear Models (GLMs) - Python
  - Discovered high cost/constraints of obtaining sonic property of petroleum reservoirs.
  - Developed statistical models (GLMs) to infer sonic property; saved $500,000 yearly data acquisition cost.

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION/ON-GOING

[C.4] S. Puengdang, W. Ausawalaithong, P. Nopratanawong, N. Keeratipranon and C. Wongkamthong, **Thailand Asset Value Estimation Using Aerial or Satellite Imagery**, *TENCON 2023 - 2023 IEEE Region 10 Conference (TENCON)*, Chiang Mai, Thailand, 2023, pp. 399-404, doi: 10.1109/TENCON58879.2023.10322494.

[J.1] Chayut Wongkamthong, Olanrewaju Akande, **A Comparative Study of Imputation Methods for Multivariate Ordinal Data**, *Journal of Survey Statistics and Methodology*, Volume 11, Issue 1, February 2023, Pages 189–212, doi: 10.1093/jssam/smab028.

[C.3] S. Venkatasubramanian, C. Wongkamthong, M. Soltani et al., **Toward Data-Driven STAP Radar**, *2022 IEEE Radar Conference (RadarConf22)*, New York City, NY, USA, 2022, pp. 1-5, doi: 10.1109/RadarConf2248738.2022.9764354.

[C.2] Y. Feng, C. Wongkamthong, M. Soltani et al., **Knowledge-Aided Data-Driven Radar Clutter Representation**, *2021 IEEE Radar Conference (RadarConf21)*, Atlanta, GA, USA, 2021, pp. 1-4, doi: 10.1109/RadarConf2147009.2021.9455318.

[C.1] C. Wongkamthong, K. Wongpattananukul, C. Suranetinai et al., **In-House Software Development for Gas Production Optimization: A South East Asia Perspective**, *2018 SPE Asia Pacific Oil and Gas Conference and Exhibition*, Brisbane, Australia, 2018, doi: 10.2118/192080-MS.

[S.1] Chayut Wongkamthong, Olanrewaju Akande, **Hierarchical Dirichlet Process Mixture of Products of Multinomial Distributions: Applications to Survey Data with Potentially Missing Values**.

SKILLS AND INTERESTS

- **Specialized Area:** Bayesian statistics, Missing data, Statistical machine learning, Numerical optimization, Applications in Finance
- **Programming Languages:** Python, R, MATLAB, SQL, VBA, Basics of Java
- **Data Science:** Bayesian Nonparametric Models (GP, DP), Machine Learning, Deep Learning, Reinforcement Learning, Numerical Optimization
- **Coursework:** Bayesian Statistics, Real Analysis, Linear Algebra, Machine Learning, Statistical Modelling and Inference, Differential Equation, Algorithm Theories, Numerical Optimization

HONORS AND AWARDS

- **Duke University Scholarship** *2019*
  The Social Science Research Institute (SSRI), Duke University
  ◦ Awarded for exceptional academic potential as a graduate student in M.S. Data Science program, covering partial tuition and fees.
- **First Class Honors and Medal of Excellence** *2015*
  Chulalongkorn University
  ◦ Awarded the Medal of Excellence for outstanding academic performance and ranking 1st in the Class of 2015, Faculty of Engineering, Chulalongkorn University.
- **King Bhumibol Scholarship** *2015*
  HM King Rama IX
  ◦ Awarded the prestigious scholarship for excellent academic achievement.
- **Gold Medal for Academic Achievement** *2014*
  King Rama X through the Engineering Institute of Thailand
  ◦ Awarded in recognition of outstanding academic performance among engineering students nationwide.

CERTIFICATIONS

- **University of Alberta & Amii on Coursera:** Reinforcement Learning Specialization Certificate *Mar. 2024*
- **University of Virginia & BCG on Coursera:** Pricing Strategy Optimization Certificate *Feb. 2024*
- **MITx:** Fundamental of Statistics Certificate *Sep. 2020*
- **MITx:** Data Analysis in Social Science Certificate *Dec. 2019*
- **DeepLearning.AI:** Deep Learning Specialization Certificate *Sep. 2019*
- **IBM on Coursera:** IBM Data Science Professional Certificate *Apr. 2019*
- **HarvardX:** Using Python for Research *Dec. 2016*
- **Stanford University on Coursera:** Machine Learning Certificate *Jun. 2016*