

Kittapat Ratanaphupa

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Research Interests

1. Differential geometry especially in geometric analysis and symplectic geometry,
2. Theoretical computer science,
3. Machine learning and signal processing.

Education

Undergraduate	BSc Health Data Science,
Aug 2018 – May 2022	Joint degree with Department of Computer Engineering, King Mongkut's University of Technology Thonburi (Bangkok, Thailand) and Faculty of Medicine and Public Health, Princess Srisavangavadhana College of Medicine, Chulabhorn Royal Academy (Bangkok, Thailand)

My secondary concentration than health data science is mathematics.

Project Thesis (In Progress)

Jul 2021 – May 2022	Investigation on Fluxomics Data Subject to Plant Varieties and Environmental Conditions of Cassava by Using Machine Learning Model
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Project Advisors:

- Asst. Prof. Dr. Santitham Prom-On
- Assoc. Prof. Dr. Treenut Saithong (Co-advisor)
- Asst. Prof. Dr. Saowalak Kanlapanulak (Co-advisor)

Relevant Courseworks

2020: Differential geometry with self-study coursework in Pseudo-Riemannian manifold.

2021: Numerical methods algorithm implementation from nearly scratch.

(Accessible on: https://github.com/KittapatR/numerical_analysis)

Honors & Scholarships

Aug 2018 – May 2022	Received fully funded scholarship on BSc Health Data Science from the department due to my academic merit
Aug 2018	Pass a placement exam for the General Physics for Engineering Students I course exemption
Jan 2019 – Dec 2019	Studied honors classes on general mathematics and physics (Mathematics II, Mathematics III, and General Physics for Engineering Students II)
Jul 2019	Received scholarship on High GPA distinctions from the department (above 3.50 in 4.00 scale)

Research/Teaching Experiences

Research Experiences

- Jun 2017 — Jan 2018 Mathematical physics research with Asst. Prof. Dr. Sikarin Yoo-Kong, King Mongkut's University of Technology Thonburi
- Major Project:**
Saksilpa Srisuksan, Kittapat Ratanaphupha, Sikarin Yoo-Kong (2018), *Hamiltonian Zoo for systems with one degree of freedom*, arXiv: 1802.06370.
- June 2019 – July 2019 Extracurricular internship
Government Big Data Institute, Ministry of Digital Economy and Society, Thailand
- Focuses:**
text analytics and data science
- Text analytics in social network data with collaboration of Department of Revenue, Ministry of Finance
- June 2020 – August 2020 Summer internship
Ramathibodi Hospital, Thailand
- Focuses:**
Data analytics and data visualization
- Visualized a medicine prescription data to find an insight in rational use of medicine via Microsoft PowerBI
- Oct 2021 — Present Mathematics research with Dr. Dmitry Berdinsky, Mahidol University
- Research Focuses:** Theoretical Computer Science and Differential Geometry
- Major Project:** (In progress) Lamplighter group and asymptotic analysis on random walks

Teaching Experiences

- 2018 — 2019 Teaching Assistant in general physics and web development
- 9 Nov 2021 Teach in Discrete Fourier Transform and its applications on Numerical Method II class

Extracurricular activities

Schools Attended:

16–21 July 2018: The 3rd KMUTT Summer School on Theoretical Physics “Dirac and Topological Matters”, Theoretical and Computational Physics group, King Mongkut's University of Technology Thonburi, Thailand

23–27 July 2018: Thailand School on High-Energy and Astro-Physics (SHEAP 2018)
Chulalongkorn University, Thailand

Covered on Introductory Quantum Field Theory and General Relativity

24–26 December 2018: The 2nd Winter School: String Theory I

Theoretical and Computational Physics group,

King Mongkut’s University of Technology Thonburi, Thailand

Covered on Classical relativistic string and quantum relativistic string

10–14 June 2019: The 4th KMUTT Summer School on Theoretical Physics

“Multi-Scale Modelling”, Theoretical and Computational Physics group,

King Mongkut’s University of Technology Thonburi, Thailand

17–21 June 2019: The 2nd Thailand School on High-Energy and Astro-Physics (SHEAP 2019), “Gravitation & Black Holes”, Naresuan University

28 June – 1 July 2021: The 5th KMUTT Summer School on Theoretical Physics

“Complex Systems and Biophysics”, Theoretical and Computational Physics group,

King Mongkut’s University of Technology Thonburi, Thailand