

## Chatdanai Lumdee, PhD

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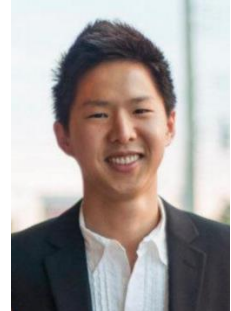
Website: [clumdee.github.io](http://clumdee.github.io)

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### COMPETENCES:

#### *Data science*

- Excellent proficiency in data processing, analysis, and visualization using Python (Jupyter Notebook, Numpy, Pandas, Matplotlib, Seaborn, scikit-learn, etc.), Matlab, and Origin
- Knowledge in machine learning, data modeling, and validation
- Working proficiency with big data tools such as SQL ([certificate](#)) and PySpark ([certificate](#))
- Example projects (all with Python – click on links to see the projects)
  - 1) [Building a recommender system with Python](#) (written in Thai)
    - Describes the importance and applications of recommender systems
    - Explains the mathematical model behind recommender systems
    - Demonstrates how to create a recommender system with NumPy and Scipy
  - 2) [Self-organizing map](#) (written in Thai)
    - Justifies the importance and use cases of self-organizing map (SOM)
    - Elucidates the working principle of SOM using an example of clustering Pokémon
    - Provides Python code and uses the code to organize countries based on their GDP per capita and income inequality index
  - 3) [Blockchain DIY with Python](#) (written in Thai)
    - Justifies the concept and impacts of blockchain technology
    - Illustrates how to build a simple blockchain network
    - Demonstrates how to visualize and to create a more realistic blockchain network with reasonable assumptions
  - 4) [An analysis on average salaries in Thailand by occupation](#)
    - Exploits data from Bank of Thailand to find development of changes in salaries among Thai workers from year 2001 to 2016
    - Extracts underlying trends in transformation of salary growth and spending power among workers from different occupations



#### *Optics and Photonics*

- In depth knowledge in classical and nanoscale electromagnetics and electronic devices
- Hands-on experiences with advanced experiments in nano-optics and nanomagnetism
- Expert in micro- and nano-fabrication and characterization techniques
- Expert in optical experimentation and characterization techniques such as microscopy and spectroscopy
- Expert in magneto-optical measurements such as Faraday and MOKE
- Well versed in utilizing electronic equipment and optical tools such as oscilloscopes, spectrum analyzers, lasers, optical fibers, lock-in amplifiers, electromagnet, etc.

- Experienced problem solver in and system designer for advanced scientific experiments using tools such as LabVIEW

#### *Characters and soft-skills*

- Detail oriented experimentalist who formulates plan based on theories, observations, and critical thinking
- Great technical writer and presenter (Thai and English) with a proven record of publications in top-tier scientific journals and presentations at international conferences
- A team player with experiences working in multi-cultural ecosystems
- In love with learning and improving oneself and the team as well as tackling challenges

*Please find my [website](#) for additional information about me e.g. blog posts and of code projects*

#### CAREERS: Data science

##### **Data scientist (Associate visionary architect)**

11/2017 – present

KLabs, Kasikorn Business-Technology Group (KBTG) – Bangkok, Thailand

*Job description:* We are exploring data to offer customers personalized financial experiences.

*Responsibilities:* Extract/transform/load data from database, such as Hadoop, to build models and review models with other teams within Kasikorn Group to find ways to better serve our current and perspective customers.

#### CAREERS: Research (check these links for [publications](#) and [presentations](#))

##### **Postdoctoral research scientist**

04/2016 – 10/2017

Department of Physics, University of Gothenburg/Chalmers – Gothenburg, Sweden

*Research topics:* magnetoplasmonics, nanomagnetism

*Research description:* We are exploring the interplay between nanoscale optics and magnetism with the aim to develop a technological platform for the next generation of data storage units (a European Union's project in EU Horizon2020 program).

*Responsibilities:*

- Fabrication and characterization (structurally, optically, and magneto-optically) of hybrid metallic-magnetic nanostructures that enhance inter-coupling between optics and magnetism
- Performing numerical simulation with Lumerical to predict and to confirm experimental observations
- Data analysis and visualization with Python to get insights, to distill, and to summarize results
- Design and optimize experiment and construct experimental control systems with Labview
- Working with collaborators from various places (on this and other side projects) e.g. Stanford University, Uppsala University, Technical University of Denmark, etc.

**Graduate research scientist**

08/2010 – 01/2016

CREOL/The College of Optics and Photonics – Orlando, Florida, USA

*Research topics:* nanophotonics, surface plasmon resonances, gap-plasmons*Research description:* I spent my time studying how nanoscale objects and light interact. This research area is the core foundation of several emerging technologies including single-molecular sensing, surface enhanced photocatalysis, and heat-assisted magnetic recording.*Responsibilities:*

- Optical characterization of *single* nanoparticles with various microscopy and spectroscopy techniques such as darkfield, fluorescence, and Raman scattering.
- Performing electromagnetic simulation to validate and add insights to experimental results (CST MICROWAVE STUDIO)
- Data analysis and visualization with Matlab and Origin
- Design and optimize experimental setup to improve measured data and pinpoint hypotheses
- Writing and presenting results in scientific journals and at conferences

**EDUCATION****Ph.D. in Optics and Photonics**

08/2010 – 12/2015

CREOL/The College of Optics and Photonics, University of Central Florida – Orlando, Florida, USA

GPA: 3.95/4.00

**B.Eng. in Nano-engineering** (*major in Nanoelectronics*)

08/2006 – 05/2010

Chulalongkorn University – Bangkok, Thailand

GPA: 3.91/4.00, Graduated with First Class Honors

**PROFESSIONAL SERVICES**

- SPIE UCF Student Chapter President (2012–2013)
- Volunteer teaching assistant – Electronics II (EEL 4309) at UCF (Summer 2013)
- Reviewed and assisted in reviewing articles for scientific journals (ACS Nano, ACS Photonics, Applied Physics Letters, The Journal of Physical Chemistry)