Titipat Achakulvisut

Personal Information

PhD Candidate
Department of Biomedical Engineering
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https://github.com/titipata
https://tupleblog.github.io

Interests

Machine Learning, Text Mining, Natural Language Processing, Science of Science, Content-based and Personalized Recommendation System, Medical Electronic Health Records

Education

Northwestern University, Evanston, IL, USA — 2015 – Present
Ph.D., Biomedical Engineering — (GPA 3.95/4.0)

Northwestern University, Evanston, IL, USA — 2013 – 2015
M.S., Biomedical Engineering

Chulalongkorn University, Bangkok, Thailand — 2008 – 2012
B.Eng, Electrical Engineering — (GPA 3.87/4.0)
First Class Honors

Awards & Fellowships

Microsoft Azure Research Award $20,000 — 2015 – 2016

2^{nd} place, data visualization challenge — 2015
Northwestern University Computational Research day, *World's science map*

Royal Thai Government Scholarship, Ministry of Science and Technology — 2012 – present

Outstanding Academic Performance in Engineering — 2008 – 2012

Nominated candidate for the Ananda Mahidol Scholarship — 2012

SCG Innovative Suggestion Award — 2011
Measure Lubricant Quality using Dielectric Constant

1^{st} place in Mathematics Entrance Exam — 2008
ONET, National Institute of Education Testing Service, Thailand

Research Experience

Allen Institute for Artificial Intelligence Intership — Spring 2017
Mentor: Chandra Bhagavatula

Master's Research — 2014 – 2015
Rehabilitation Institute of Chicago (RIC), Northwestern University
Advisor: Konrad Kording
Research: A fast content-based recommendation system for scientific publications

Research Intern — 2012 – 2013
AIM Laboratory, Department of Biomedical Engineering
Mahidol University, Salaya, Thailand

Undergraduate Research — 2011 – 2012
DSPRL Laboratory, Department of Electrical Engineering
Chulalongkorn University, Bangkok, Thailand
Advisor: Nisachon Tangsangiumvisai
Research: Adaptive Filter and Noise Reduction Algorithm

Talk

Invited talk at Brain and Behaviour lab, Imperial College London	September 2016
Data visualization judging panel, Northwestern Computational Research day	April 2016
Invited talk at HAMLET group, University of Wisconsin at Madison	March 2016
Invited talk at ChiPy (Chicago Python community), Bank of America	February 2016
Invited talk at Knowledge Lab, University of Chicago	November 2015
Invited talk at SONIC lab, Northwestern University	April 2015

Journal Article

Achakulvisut T, Acuna DE, Ruangrong T, Kording K (2016) *Science Concierge: A Fast Content-Based Recommendation System for Scientific Publications.* PLoS ONE 11(7): e0158423. doi:10.1371/journal.pone.0158423 (see on)

Publications

D. E. Acuna, T. Achakulvisut, K. P. Kording — October 2015
How to visit 0.5% of 15,000 possible posters? Automated poster visit scheduler for SfN
Society for Neuroscience conference (see www.scholarfy.net)

D. E. Acuna, T. Achakulvisut, K. P. Kording — June 2015
Website for Automatic Reviewer Assignment and Manuscript Scoring
Science of Team Science conference (see pr.scienceofscience.org)

Patent

Konrad Kording, Daniel E. Acuna, Titipat Achakulvisut. *Data Butler.* — 2015
U.S. Provisional Patent Application No. 62/218,998, filed September 15, 2015
(assignee Rehabilitation Institution of Chicago)

Media

PLOS Blogs, #PLOS #SfN15 preview: build your itinerary with this great new tool (see article)

Projects

Scholarfy - content-based recommendation for MEDLINE dataset
Recommendation system web application to search 14.3 millions publications from MEDLINE dataset (ongoing project, see pubmed.scholarfy.net)

Disambiguation of grant and publication datasets
Applying disambiguation algorithm to disambiguate institutions and authors from disparate dataset including MEDLINE, NIH and NSF grant datasets (ongoing project, see on)

Pubmed Parser
Python parser for PubMed Open-Access (OA) subset and MEDLINE XML repository (see on)

pyglmnet
A python implementation of elastic-net regularized generalized linear models (main contributor, see on)

Neural Event Reconstruction and Detection via Sparsity (NERDS)
Matlab package implementing blind deconvolution method for neural spike recovery from calcium signal. Implemetation of algorithm invented by E. L. Dyer (see on)

Optimal Control of Thrust-Vectored Hovering Rocket
Simulation of projection-based optimal control of non-linear system in Mathematica. This was the final project in an Optimal Control of Nonlinear Systems class taught by Prof. Todd Murphey (see on)

Lagrangian Mechanics of Trapezoidal Box with Movable Link
Simulation of a complex dynamical system including impact using Lagrangian mechanics method in Mathematica. This was the final class project in Theory of Machine Dynamics taught by Prof. Todd Murphey

Framework for Brain Image Segmentation using modified Fuzzy C-Means Clustering Algorithm
Research assistant under the supervision of Assoc. Prof. Panrasee Ritthipravat at AIM Laboratory. This project included a collaboration with Zaw Htet Aung and Tulakarn Ruangrong from the class project Intelligence Systems and Biomedical Signal Processing class project

A Noise Reduction Technique for Hands-Free Telephony in a Car Environment, M-Max LMS Adaptive Algorithm in Hands-Free Telephony
Senior Projects at Digital Signal Processing Research Laboratory (DSPRL) under the supervision of Assoc. Prof. Nisachon Tangsangiumvisai

Membership

NIH Special Volunteer	2016 – present
Member of the McCormick Graduate Leadership Council , Northwestern U.	2014 – 2015
IEEE Student Membership	2011 – 2015
Member of the Engineering Students Academic Club	2008 – 2011
Member of the Engineering Light and Sound Club	2008 – 2011

Selected Extracurricular Activities

Summer School in Computational Sensory-Motor Neuroscience (CoSMo) 2014

Brain Fair 2014
Volunteered with Northwestern University Brain Awareness Outreach (NUBAO) educating Chicago community about the brain

Head of Educational Parts, NECTEC Electronics Camp 2010
Taught basic electronics and circuit theory using laboratory experiments

Member of the Funfueng Camp 2008 – 2010
Tutored Mathematics and Natural Sciences to students in remote areas of Thailand

Head of Freshmen Tutorial Project 2009
Recruited engineering tutors for Calculus, Physics, Chemistry, and Basic Computer Programming (I was also a tutor from 2008 – 2012)

Physics Olympiad Camp 2006 – 2007

Computer Skills

Programming and Scripting Languages:
Advanced: Python (NumPy, scikit-learn, pandas), Apache Spark, MATLAB, Mathematica
Intermediate: Julia, HTML, CSS, JavaScript, Java, R, C, AngularJS, Scala

Others: LaTeX, Emacs, Git, Adobe Illustrator, Microsoft Office

Cloud Computing: Amazon EC2, Google Cloud Computing, Microsoft Azure

Operating Systems: Mac OS X, Linux, Windows

Languages

Thai (Native), English (Proficient)