**Dr. Hao Wu, Tony**

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Assistant Professor, Shenzhen University

**Research Areas**

***Intelligent Computation***: Evolutionary Computation, Swarm Intelligence

***Data Mining:*** Classification, Clustering, Data Science, Frequent Pattern Recognition

***Machine Learning:*** Computer Vision, Graph Neural Network

**Experiences**

**Shenzhen University** Jul. 2019 - Now

Assistant Professor, College of College of Electronics and Information Engineering

Guangdong Key Laboratory of Intelligent Information Processing, Shenzhen University

**Tencent Holdings** Jan. 2018 – Jun. 2019

Researcher at Financial Technology (FiT) Department, Corporate Development Group (CDG)

Job description: 1) to build mathematical models for Tencent online payment (like WeChat Pay); 2) to build models for quantifying the risk of payment behaviors; 3) to apply AI algorithms on identifying the payment risk, like gamble, fraud and money laundering; 4) to establish user portrait using financial activities; 5) to build credit investigation model for corporate finance.

**The University of Hong Kong** Sept.2014 – Jun.2018

Ph.D. at Department of Electrical and Electronic Engineering

Supervisor: Dr. Grantham K.H. Pang

Thesis: Optimal schedule for electric vehicle charging at parking lots and battery swapping stations

**The University of Hong Kong**  Sept. 2013 – Aug.2014

M.Sc., Department of Electrical and Electronic Engineering

**Nanjing University of Posts and Telecommunications**  Sept.2009 – Jun.2013

B.E., College of Telecommunications and Information, China

**Publications**

**H.Wu**, G.K.H.Pang, K.L.Choy, and H.Y.Lam, “Dynamic Resource Allocation for Parking Lot Electric Vehicle Recharging using Heuristics Fuzzy Particle Swarm Optimization Algorithm,” *Applied Soft Computing*, vol. 71, pp. 538-552, Oct. 2018. DOI: https://doi.org/10.1016/j.asoc.2018.07.008

**H.Wu**, G.K.H.Pang, K.L.Choy, and H.Y.Lam, “An Optimization Model for Electric Vehicle Battery Charging at a Battery Swapping Station,” *IEEE* *Transactions on Vehicular Technology*, vol. 67(2), pp. 881-895, Feb.2018. DOI: doi.org/10.1109/TVT.2017.2758404

**H.Wu**, G.K.H.Pang, K.L.Choy, and H.Y.Lam, “A Charging-Scheme Decision Model for EV Battery Swapping Station Using Varied Population Evolutionary Algorithms,” *Applied Soft Computing,* vol. 61, pp. 905-920, Dec. 2017. DOI: https://doi.org/10.1016/j.asoc.2017.09.008

E.W.Y.Kwong, **H.Wu\***, and G.K.H.Pang, “A prediction model of blood pressure for telemedicine,” *Health Informatics Journal*, Aug. 2016, DOI: 10.1177/1460458216663025. \* **Corresponding Author**

**H.Wu**, G.K.H.Pang, K.L.Choy, and H.Y.Lam, “A scheduling and control system for electric vehicle charging at parking lot,” *The 2017 Asian Control Conference (ASCC 2017)*, 17-20 Dec. 2017. (**Oral Presentation**). DOI: 10.1109/ASCC.2017.8287095

**T. H.Wu**, G.K.H.Pang, K.L.Choy, and H.Y.Lam,“An Optimization Model for a Battery Swapping Station in Hong Kong,” *Transportation Electrification Conference and Expo, 2015 IEEE*, Jun. 2015.

**T.H.Wu**, E.W.Y.Kwong, and G.K.H.Pang, “Bio-medical Application on Predicting Systolic Blood Pressure Using Neural Networks,” *Big Data Computing Service and Applications (BigDataService), 2015 IEEE First International Conference on*, Apr. 2015 ( **Oral Presentation**)

**T.H.Wu**, G.K.H.Pang, and E.W.Y.Kwong, “Predicting Systolic Blood Pressure Using Machine Learning,” Information and Automation for Sustainability, 7th International Conference on, Dec. 2014 (**Oral Presentation**)

V.Chan, **T.H.Wu**, and G.K.H.Pang. “Design intelligence of web application for Internet direct consumer-to-consumer trading”, *Information Networking (ICOIN)*, *2015 International Conference on,* Jan. 2015.

V.Chan, **T.H.Wu**, and G.K.H.Pang. “Decision Support and Data Mining for Direct Consumer-to-consumer Trading”, *Internet Technology and Secured Transactions (ICITST), 2014 9th International Conference for*, Dec. 2014. (**Oral Presentation**)

**Qualifications**

**Algorithms**

* Expert in **Data Mining**, such as data warehouse building, feature processing and selection, model establishment, clustering and prediction.
* Expert in **Optimization Algorithms**, including Genetic Algorithm (GA), Particle Swarm Optimization (PSO) Algorithm and Differential Evolutionary (DE) Algorithm
* Familiar with **Machine Learning** technologies, including Artificial Neural Network (ANN), Convolutional Neural Network (CNN), and Support Vector Machine (SVM).
* Familiar with the **TensorFlow** development framework
* Skilled in analyzing and building mathematic model for simulation and optimization

**Programming languages**

* Expert in Python, MATLAB, SPARK, MySQL and Linux
* Familiar with C, C++, C#, PHP, HTML and CSS

**Research Projects**

1. AI based decision system for credit card applications Jul. 2017 – Dec. 2018

* Cooperated company: a commercial bank in Hong Kong
* Technology: user requirement analysis, problem formulation, neural network, TensorFlow framework, data operation with principle component analysis (PCA),

1. Parking lot dynamic resource allocation system for EVs Jan. 2017 – May. 2018

* Technology: problem formulation, PSO algorithm, fuzzy system, heuristics, algorithm design, simulation study, paper writing.

1. EV Battery Swapping Station Optimization Model Sept. 2014 - Present

* Technology: problem formulation, optimization algorithms (GA, PSO, DE), heuristics, algorithm design, simulation study, paper writing.

1. Blood pressure prediction with artificial neural network Jun. 2014 – Dec.2014

* Technology: artificial neural network e.g. back-propagation neural network, radial basis function neural network, algorithm design, simulation study, paper writing.

1. Tunnel vision inspection (TVI) project Jan. 2016 – Dec. 2016

* Cooperated company: MTR Corporation Limited, Hong Kong
* Technology: user requirement analysis, industrial automation system design, circuit diagram design and fabrication, micro control unit (MCU) programming, software development with C#, onsite calibration, project delivery.

1. Enterprise resource planning (ERP) and scheduling system Feb. 2015 – Nov. 2015

* Cooperated company: Millennium Printing (shenzhen) Co.,Ltd, China
* Technology: user requirement analysis, problem formulation, algorithms design (based on GA), software implementation with C#, debug, project delivery.

1. C2C trading web application - www.student-trade.com Jul. 2014 – Oct. 2014

* Technology: PHP, MySQL, HTML, CSS, MAMP, Larvel.

**Professional Experiences**

Journal Reviewer:

* IEEE Transactions on Industrial Informatics
* Health Informatics Journal
* Control and Intelligent Systems

Teaching Assistant:

* ELEC 6604: Neural networks, fuzzy systems and genetic algorithms 2017
* ELEC 3503: Fuzzy system and neural network 2016
* ELEC 6098: Electronic and mobile commerce 2014

**Languages**

**English:** Proficient User

**Mandarin:** Native Speaker

**Organization Experiences**

Chairman of the Postgraduate Students Association at HKU 2017-2018

* The University of Hong Kong

Vice President of the Postgraduate Students Association at HKU 2015-2016

* The University of Hong Kong

Chairman of the Science and Technology Association at NUPT 2011-2012

* Nanjing University of Posts and Telecommunications

**Honors and Awards**

Postgraduate Scholarship 2014 - 2018

* The University of Hong Kong

Conference Grant 2015

* University Research Committee, The University of Hong Kong

Excellent Student Scholarships (Two Times) 2011 - 2012

* Nanjing University of Posts and Telecommunications, China

Sunwave Scholarship 2012

* Sunwave Solutions Corportation, China

Hengtong Scholarship 2011

* Hengtong Optic-electric Co., Ltd, China

Academic Scholarships (Three Times) 2010 - 2012

* Nanjing University of Posts and Telecommunications, China

First-class Prize (**National Level**) in the “National Energy-saving and Emission Reduction Social Practice and Scientific & Technological Work Innovation Competition” 2011

* Higher Education Department, Education Ministry of China

Second Prize (**Provincial Level**) in “Jiangsu Physics and Experiment Scientific & Technological Work Innovation Competition” 2010

* Jiangsu Education Department, Jiangsu Province, China