Ameer Tamoor Khan

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EDUCATION

PH.D. IN COMPUTING

The Hong Kong Polytechnic University
Expected June 2022
Cum. GPA: 3.57/4.00

Publications: 10
First Author: 9
Second Author: 1
Additional Submissions: 5

Website: bas.atkhan.info

BS IN ELECTRICAL ENGINEERING

Completed June 2017

Pakistan Institute of Engineering And Applied Sciences, Islamabad.
Cum. GPA: 3.85 / 4.0

LINKS

Github:// AmeerTamoorKhan
LinkedIn:// ameer-tamoor-khan
Twitter:// @AmeerTamoorKhan

COURSEWORK

GRADUATE

Advanced Data Analytics
Advanced Artificial Intelligence
Advanced Computer Algorithms
Advanced Visual Computing

UNDERGRADUATE

FPGA, Control System,
Signal Processing, Robotics,
Circuit Analysis, Microcontroller

SKILLS

PROGRAMMING

Professional:
Python • Numpy • Pandas
• Keras • Tensorflow

Intermediate:
Pytorch • Matlab • C
• C++

Familiar:
HTML • CSS • JavaScript

EXPERIENCE

THE HONG KONG POLYTECHNIC UNIVERSITY Research Assistant

Duration: 2017-2018

- Vision-based autonomous control of Soft robotic hand to pick-place objects.
- Human Assistive Soft Arm using SMA (Shape Memory Alloy).
- Stewart Platform using Soft Robotic Muscle.
- Implementation of Forward and Inverse Kinematic of Dobot.

PTCL (TELECOMMUNICATION): INTERN IP Network Services

Duration: 2016

- Improve network operations, enhance network resilience, bandwidth capacity, latency, and packet loss.

PTCL (TELECOMMUNICATION): INTERN Customer Services

Duration: 2016

- Improve customer's network experience.

WRITING CREEK: FREELANCER Intermediate Writer

Duration: 2017-2018
Success Rate: 96%
Rating: 4.75/5

PUBLICATIONS

FIRST AUTHOR

2021:

1) Trajectory Optimization of 5-link Biped Robot Using Beetle Antennae Search (Accepted)
2) Obstacle Avoidance and Modelfree Tracking Control for Home Automation Using Bioinspired Approach
3) Control framework for cooperative robots in smart home using bio-inspired neural network

2020:

4) Human Guided Cooperative Robotic Agents in Smart Home Using Beetle Antennae Search
5) Control framework for trajectory planning of soft manipulator using optimized RRT algorithm
6) Quantum beetle antennae search: a novel technique for the constrained portfolio optimization problem
For more publications visit **Publications** section at atkhan.info

2019:

7) Blockchain Technology with Applications to Distributed Control and Cooperative Robotics: A Survey

2018:

8) A survey on blockchain technology and its potential applications in distributed control and cooperative robots.
9) Model-free optimization using eagle perching optimizer.

CO-AUTHOR

2019:

1) Integrating Open-Source Tools for Embedded Software Teaching: A Case Study. Advances in Engineering Education.

REVIEWER:

1) IEEE Conf. on Decision and Control.
2) IEEE Transactions on Circuits and Systems II- Express Brief
3) Elsevier: Measurement
4) Elsevier: Neurocpmputing
5) Springer: Neural Processing Letters
6) Journal of Sensors

EDITORIAL BOARD:

1) International Journal of Robotics and Control Systems

UNDER SUBMISSION ARTICLES

1) Enhanced Beetle Antennae Search with Zeroing Neural Network For Online Solution of Constrained Optimization
Status: Neurocomputing, Major Revision

2) Zeroing Neural Network with Beetle Antennae Search: A Novel Tracking Controller For Surgical Manipulator Under RCM Constraint
Status: IEEE RA-L, Under Review

3) Optimally Configured GRU-RNN Using Hyperband For The Long-Term Forecasting Of Solar PV Plant
Status: IEEE TRANSACTIONS ON SUSTAINABLE ENERGY, Under Review

4) Using Quadratic Interpolated Beetle Antennae Search For Higher Dimensional Portfolio Selection Under Cardinality Constraints
Status: Applied Mathematics and Computation, Under Review

5) Non-linear Activated Beetle Antennae Search: A Novel Technique for Non-Convex Tax-Aware
Status: Expert Systems With Applications, Under Review

PROJECTS

PH.D. RESEARCH PROJECT

1) Beetle Antennae Search (BAS): BAS is a nature inspired heuristic algorithm. It mimics the food searching nature of the beetle to find the optimal solution of the optimization problem. My Ph.D. mostly circles around Beetle Antennae Search (BAS) algorithm and its application in real-world problems, e.g., human assistive bots, surgical bots, cooperative bots, stock market forecasting, etc. I have employed BAS in path-planning of robots, Click Here

DATA SCIENCE PROJECTS

1) Twitter Bot: Scrap tweets, clean them, retrieve relevant data, place them in a data-frame, and save them. Click Here

2) Pinterest: It is known as an Image hub, where quality images are available on almost everything in abundance. So to avoid the tireless effort of saving images one by one, the "Pinterest Bot" will crawl and collect images for us along with captions and will save them on our PC. Click Here

3) Quora Bot: It is another fun Scraping project to grab the most appropriate, more suitable answer for the asked question. Click Here

MACHINE LEARNING PROJECTS

1) Fake News Detector: It is a research project to classify the FAKE news and REAL news. Deep learning model is trained over 40,000 news taken from a benchmark dataset. The dataset composed of political news mostly, so may not be compatible with news from other walks of life. The model has the accuracy of over 90% with validation and test dataset. Click Here

2) Diagnoser: It is a Mini-Machine Learning project to diagnose the disease based on the symptoms. The tested diseases along with the symptoms are on the right text file. Click Here

3) Sentimeter: It is designed to analyze the semantic of a sentence to conclude whether it has a positive sentiment or negative. The model includes LSTM (Long Short Term Memory). Click Here

4) Trump-o-meter: It is a fun project designed to understand the dynamics of Trump's wording in his tweets. The project is trained using LSTM-RNN and the model is trained on 40,000 tweets Click Here

MACHINE LEARNING GAMING PROJECTS

1) Dino Chrome: It is a replication of famous Chrome Dino game, which we play without internet connectivity. Click Here

2) Pong Game: Trained the agent through supervised learning to play a pong game. The goal is simple, not letting the ball pass the paddle. After providing a bunch of training data, the system learns to play the game on its own. Click Here

3) Self Driving Car Game: Using reinforcement learning a car is trained to avoid the obstacles. NEAT (Neuro Evolution of Augmenting Topologies) algorithm is used to train the agent. Click Here

4) Q-Learning Bridge Cross: The agent is trained to reach the goal position. The agent is required to cross the broken bridges by putting block to pave the path. Q-Learning is used to train the agent. Click Here

5) Q-Learning Maze Runner-: The agent explores the environment on its own without any prior data and based on the action it takes and the reward it gets on each action, the agent tries to maximize that reward. Q-Learning is used to train the agent. Click Here

For more projects visit: Github Repository Website

ENTREPRENEURSHIP

2019: Secured $50,000 in PolyU Micro Fund Scheme.
2018: Particiaped in PolyU Micro Fund Scheme.