KAPILAN BALAGOPALAN

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INTRODUCTION

Skilled and hardworking PhD student, with research experience in recommendation systems, bandit algorithms and reinforcement learning along with industrial work experience in embedded and hardware programming, looking for summer internships

EDUCATION

University of Arizona, USA *Aug 2022 - present*
PhD in Computer Science
Current GPA: 3.714/4.0

University of Moratuwa, Sri Lanka *Feb 2014 - Jan 2018*
B.S.(Hons) in Engineering
Department Electronic and Telecommunication Engineering
Overall GPA: 3.81/4.2

Hartley College, Sri Lanka *Apr 2010 - Aug 2012*
GCE Advanced Level
Physical Science
Z-score: 2.9004 - National rank - 03

WORK EXPERIENCE

Thales Digital Identity & Security May 2020 - May 2022
Embedded Software Engineer *Thales DIS, Singapore*

Development of Smart card OS for Telco, Secure Element, Transport and Banking applications to be deployed on micro controller chips.

London Stock Exchange Group Feb 2018 - Feb 2020
Hardware Acceleration Engineer *LSEGTechnology, Sri Lanka*

Acceleration of time critical modules in exchange and trading platforms using FPGAs.

RESEARCH EXPERIENCE

University of Arizona Aug 2022 - present
Research Assistant *University of Arizona, USA*

1. Broadly working on advanced linear bandit algorithms and best arm identification for multi armed bandits under the supervision of Dr. Kwang-sung Jun.
2. Proposed a new randomized algorithm for linear bandits with closed form probability - LinMED (**M**inimum **E**mpirical **D**ivergence for **Lin**ear Bandits)
3. LinMED have a strong theoretical quarantees and empirical performance comparable to state-of-the-art algorithms and even stronger offline evaluation performance.

4. Worked on designing algorithms for best arm identification which can guarantee an exponentially decaying stopping time.
5. Submitted conference paper on item (3) and item (4) at AISTATS, which are currently under review.

Temasek Laboratory, Nanyang Technological University Aug 2016 - Dec 2016
Research Assistant *NTU, Singapore*

1. Implemented improved GEA algorithm based on higher order statistics to separate desired signal in the presence of strong co-channel interference for OQPSK signals.
2. Sequence estimation by applying MMSE equalization on initially separated signal(step 1) and then cancellation of the same signal to estimate the other signal.
3. Combined joint sequence estimation and Iterative Equalization (step 1 and 2)
4. Analyzed the effectiveness of the implemented methodology using recorded real signals.

PUBLICATIONS AND CONFERENCES

1. Minimum Empirical Divergence for Sub-Gaussian Linear Bandits. Kapilan Balagopalan , Kwang-Sung Jun. Under review at AISTATS (2025)
2. Fixing the Loose Brake: Exponential Tail Bounds for Stopping Time in Best Arm Identification. (co 1st author: †) Kapilan Balagopalan†, Tuan Nguyen†, Yao Zhao†, Kwang-Sung Jun. Under review at AISTATS (2025)
3. Wang, G., Kapilan, B., Razul, S.G. et al. Blind Equalization in the Presence of Co-channel Interference Based on Higher-Order Statistics. Circuits Syst Signal Process 37, 4150–4161 (2018). doi: 10.1007/s00034-017-0744-x

RELATED COURSEWORKS

Introduction to Machine Learning, Introduction to Computer Vision, Machine Learning Theory, Design and Analysis of Algorithms, Advanced Topics in Artificial Intelligence, Probabilistic Graphical Models, Theory of Statistics, Principles of Networking

TECHNICAL SKILLS

Programming Languages	Python, Java, C/C++, Matlab, Octave, Verilog, Javacard, Embedded C, Latex
Application and Tools	FPGAs, Micro-controllers.

AREAS OF INTEREST

Listed in the order of priority

- Bandit Algorithms
- Recommendation systems
- Machine Learning
- Embedded programming

REFEREES

References available upon request