

# Thaha Mohammed

Personal Webpage | [thaha.mohammed@aalto.fi](mailto:thaha.mohammed@aalto.fi)

## LINKS

Github: [stormvirux](#)  
LinkedIn: [mthaha](#)  
Skype: [thaha](#)  
Stack: [stormvirux](#)

## EXPERTISE

IoT • Networks • WSN  
Machine Learning • Deep-Learning • HPC • CUDA • Big Data • Sparse Iterative Linear Solvers • Smart-City Infrastructure

## COURSEWORK

### GRADUATE

Advanced Operating Systems  
Advanced Algorithm Design  
Advanced AI  
Advanced Networking  
Deep Learning  
Advanced Computer Architecture  
Advanced Software Engineering  
Advanced Fault Tolerance  
High Performance Computing

## SKILLS

### PROGRAMMING

OVER 3000 LINES:

• C++ • C • Python • CUDA  
Rails • R • Matlab •  $\LaTeX$

OVER 1000 LINES:

• Shell • PHP • Fortran • Javascript

FAMILIAR:

• Assembly • Java • SQL • Scala  
• Tcl/Tk

## TOOLS

• Git • Linux • NS-3 • Matlab • R  
 $\LaTeX$  • Tensorflow • Caffe

## COMMUNICATION

IELTS, ENGLISH LANGUAGE

25 Mar 2017 - 25 Mar 2019

• Listening: 9.0 • Reading: 8.0  
• Writing: 7.0 • Speaking: 7.5  
• Overall: 8.0

NATIVE: Malayalam

## EDUCATION

### DOCTOR OF PHILOSOPHY | AALTO UNIVERSITY

Feb 2019 – Present | Espoo, Finland

- Developed an offloading framework to improve the performance of DNNs in fog networks with Prof. Mario Di Francesco. Accepted at *IEEE INFOCOM 2020*

### MASTER OF SCIENCE, COMPUTER SCIENCE | KING ABDULAZIZ UNIVERSITY (KAU)

Jan 2015 - Jan 2017 | Jeddah, KSA

GPA: 4.95/5.0

- Developed a fault detection and fault tolerance strategy for Wireless Sensor Networks with Dr. Riaz Shaikh. One journal article has been published from this work in *JNCA*.
- A Novel Deep Learning based Iterative Solver for Large Sparse Linear Equation Systems was developed under the supervision of Prof Rashid Mehmood. My M.Sc thesis was based on this work. Two Publications have been submitted and are currently under review.

### BACHELOR OF ENGINEERING, COMPUTER SCIENCE & ENG | VISVESVARAYA TECH. UNIVERSITY

Aug 2009 - May 2013 | Belgaum, India

Grade: First Class Distinction (FCD) | Graduated within top 5% of class

- Developed a GPU based web usage pattern mining algorithm as a part of the Undergraduate Project.

## PROFESSIONAL EXPERIENCE

### KAU HPC CENTER | RESEARCH ASSISTANT

Aug 2017 – Dec 2018 | Jeddah, KSA

- Developed a framework to improve the Quality of Service (QoS) of networked healthcare services based on edge-computing paradigms, using Deep Learning and soft computing techniques with Prof. Rashid Mehmood. One article was published from this work in *IEEE Access*.
- Created fault-tolerant routing algorithms for IoT and Wireless Sensor Networks to enable reliable and resilient smart city applications with Prof. Rashid Mehmood. One conference proceedings has been published in *Springer Lecture Notes in ICST* series and three book chapters have been accepted in *EAI/Springer Innovations in Communication and Computing* series.
- Developed a tool named SURAA to enable load-balanced execution of sparse matrix-vector product on GPUs with the help of CUDA Dynamic Parallelism.

## TEACHING

### KING ABDULAZIZ UNIVERSITY | TA

Jan 2015 – Jan 2017 | Jeddah, KSA

- CPCS-202 Java programming: Handled lab sessions weekly, evaluated and graded student's weekly exercise submissions.

### EDX | TA

June 2013 – Present | [edx.com](#)

- I spend my free time volunteering as a Teaching Assistant for the online course, *Software as a Service* hosted by edX.

## ACTIVITIES

### WORKSHOPS

Jan 2009 – May 2013 | India

- Organized Byte-Struck, a state-level technical Workshop for four consecutive years.
- Conducted workshops on HPC and Linux.

## GROUPS & SOCIETIES

- 2016 Student Member, IEEE
- 2016 Student Member, ACM
- 2015 Free Software Movement
- 2012 Grid Research at PACE
- 2012 Pace GNU/Linux User Group

## ACADEMIC MERITS

### REVIEWER

Jan 2018 – July 2018

- International Journal of Communication Systems (INT J COMMUN SYST)
- Computers and Electronics in Agriculture (COMPUT ELECTRON AGR)
- IEEE Access (COMPUT ELECTRON AGR)
- Computer Networks (COMPUT NETW)

### MENTOR

Jan 2020 – Jul 2020 | Espoo

- Mentoring M.Sc Thesis on *Distributed Deep Learning at Edge*
- Mentoring a special assignment on *Distributed Deep Learning at Edge*

Jan 2017 – Aug 2017 | Jeddah

- Mentored a student's M.Sc thesis entitled *Parallel Iterative Solution of Large Sparse Linear Equation Systems on Intel Xeon Phi Coprocessors*
- Mentor for workshop on Rails, MeemBit Technologies

## PUBLICATIONS

### PUBLISHED

- [1] T. Muhammed and R. A. Shaikh, "An analysis of fault detection strategies in wireless sensor networks," Elsevier Journal of Network and Computer Applications, vol. 78, pp. 267 – 287, 2017.
- [2] T. Muhammed, R. Mehmood, A. Albeshri, and I. Katib, "Ubehealth: A personalized ubiquitous cloud and edge-enabled networked healthcare system for smart cities," IEEE Access, vol. 6, pp. 32258–32285, 2018.
- [3] T. Muhammed, R. Mehmood, and A. Albeshri, "Enabling reliable and resilient iot based smart city applications," in Smart Societies, Infrastructure, Technologies and Applications (R. Mehmood, B. Bhaduri, K. lyad, and I. Chlamtac, eds.), (Cham), pp. 169–184, Springer International Publishing, 2018.
- [4] T. Muhammed, R. Mehmood, A. Albeshri, and A. Alzahrani, ch. "HCDSR: A Hierarchical Clustered Fault Tolerant Routing Technique for IoT based Smart Societies," in Smart Infrastructure and Applications: Foundations for Smarter Cities and Societies (R. Mehmood, S. See, I. Katib and I. Chlamtac), EAI/Springer Innovations in Communication and Computing, Springer International Publishing, In Press.
- [5] Muhammed, T., Mehmood, R., Albeshri, A., Katib, I. SURAA: A Novel Method and Tool for Loadbalanced and Coalesced SpMV Computations on GPUs. Appl. Sci. 2019, 9, 947.

### ACCEPTED

- [5] Mohammed, T., Joe-Wong, C., Babbar, R., and Di Francesco, M. Distributed Inference Acceleration with Adaptive DNN Partitioning and Offloading IEEE INFOCOM 2020 - IEEE Conference on Computer Communications (INFOCOM 2020), 2020.

### UNDER REVIEW

- [6] T. Muhammed, R. Mehmood, A. Albeshri, and I. Katib, "An adaptive linear sparse jacobi solver for gpus using deep learning model," Under Review (Journal of Supercomputing).
- [7] T. Muhammed, R. Mehmood, A. Albeshri, and I. Katib, "An analysis of sparse matrix storage for spmv kernels.," Under Review (ACM Computing Surveys).
- [8] T. Muhammed, R. Mehmood, A. Albeshri, and I. Katib, "UbiPriSEQ: Deep Reinforcement Learning to Manage Privacy, Security, Energy, and QoS in 5G IoT HetNets", Invited article, IEEE Networks.