Mohamed Assem Ibrahim

McGlothlin-Street Hall, 101B
Williamsburg, VA 23187

Email: maibrahim@email.wm.edu
Contact Number: +1-757-604-9355
Homepage: http://massemibrahim.github.io/

RESEARCH INTERESTS

My research interests lie in all aspects of computer architecture, including data-parallel architectures (e.g., GPUs), CPU-GPU heterogeneous architectures, and interconnection networks.

EDUCATION

- **College of William & Mary (W&M)** **Spring 2016 – Present**
  Ph.D. Candidate in Computer Science Department **Williamsburg, VA**
  GPA = 4

- **Cairo University (CU)** **Fall 2010 – Fall 2015**
  M.Sc. in Computer Engineering **Giza, Egypt**
  GPA = 4

- **Cairo University (CU)** **Fall 2005 – Spring 2010**
  B.Sc. (Hons.) in Computer Engineering **Giza, Egypt**
  GPA = 3.91 (Calculated with Foreign Credits GPA Calculator)

PROFESSIONAL EXPERIENCE

- **College of William & Mary (W&M)** **January 2016 – Present**
  Research Assistant **Williamsburg, VA**
  Advisor: Assistant Professor Adwait Jog
  My role is to conduct research related to Large-Scale GPU architectures.

- **AMD Research** **May 2018 – August 2018**
  Co-Op Engineer **Santa Clara, CA**
  Mentors: Onur Kayiran, Yasuko Eckert
  My role was to conduct research related to Large-Scale GPU cache design. It resulted in filing three US patent applications.

- **Cairo University (CU)** **August 2010 – December 2015**
  Research Assistant **Giza, Egypt**
  Advisor: Professor Hatem El-Boghdadi
  My role was to conduct research related to Bufferless Network-on-Chip.

- **Nile University (NU)** **June 2012 – June 2013**
  Research Software Development Engineer (RSDE) **Giza, Egypt**
  Advisor: Associate Professor Tamer ElBatt
  My role was to conduct research and create functional prototypes related to predictive loading of content on mobile phones based on user modeling. The results of this work are published in ICC 2014 and MobiSys 2013.

- **Inmobly** **October 2011 – June 2013**
  Software Engineer **Giza, Egypt**
  Manager: Professor Hesham ElGamal
  Mentor: Associate Professor Nayer Wanas
  My role was to implement some of the required functionalities for several mobile applications. In *PAUL*, I implemented logging and reporting modules (for WiFi, content usage and battery), and scripts to analyze the logs and to build the user profile to correctly predict the different users' behavior. In *inFootball*, I implemented the news crawler and the handlers for the different client-side requests. In *Agenda25*, I implemented the BlackBerry version of the application.

AWARDS, GRANTS, and HONORS

- Graduate Assistantship, College of William & Mary, 2016

- Student Travel Grant for attending: ISCA 2015, HPCA 2017, MICRO 2017, HPCA 2018, MICRO 2018

- Graduate Student Association Conference Funds, College of William & Mary, 2017, 2018

- Graduate Assistantship, Cairo University, 2010

- Best Graduation Project (Software Engineering Category), Egyptian Engineering Day (EED), IEEE GOLD, 2010

PUBLICATIONS

[**ICS 2019**] Haonan Wang, <u>Mohamed Ibrahim</u>, Sparsh Mittal, Adwait Jog, *Address-Stride Assisted Approximate Value Prediction in GPUs*, In the Proceedings of The 33rd ACM International Conference on Supercomputing (ICS), Phoenix, Arizona, June 2019 ***Acceptance rate: $45/193 \approx 23\%$***

[**MICRO 2018**] Hongyuan Liu, <u>Mohamed Ibrahim</u>, Onur Kayiran, Sreepathi Pai, Adwait Jog, *Architectural Support for Efficient Large-Scale Automata Processing*, In the Proceedings of The 51st International Symposium on Microarchitecture (MICRO), Fukuoka, Japan, October 2018 ***Acceptance rate: $74/348 \approx 21\%$***

[**SRC 2018**] <u>Mohamed Ibrahim</u>, Hongyuan Liu, Onur Kayiran, Adwait Jog, *Poster: Design and Analysis of Efficient Inter-core Communication in GPUs*, In The ACM Student Research Competition at The 51st International Symposium on Microarchitecture, Fukuoka, Japan, October 2018

[**HPCA 2018**] Haonan Wang, Fan Luo, <u>Mohamed Ibrahim</u>, Onur Kayiran, Adwait Jog, *Efficient and Fair Multi-programming in GPUs via Effective Bandwidth Management*, In the Proceedings of The 24th International Symposium on High-Performance Computer Architecture (HPCA), Vienna, Austria, February, 2018 ***Acceptance rate: $54/260 \approx 20\%$***

[**AIM 2017**] Hengyu Zhao, Colin Weinshenker, <u>Mohamed Ibrahim</u>, Adwait Jog, Jishen Zhao, *Layer-wise Performance Bottleneck Analysis of Deep Neural Networks*, In the Proceedings of The 1st International Workshop on Architectures for Intelligent Machine (AIM), Portland, Oregon, September, 2017

[**HPCA 2017**] Xulong Tang, Ashutosh Pattnaik, Huaipan Jiang, Onur Kayiran, Adwait Jog, Sreepathi Pai, <u>Mohamed Ibrahim</u>, Mahmut Kandemir, Chita Das, *Controlled Kernel Launch for Dynamic Parallelism in GPUs*, In the Proceedings of The 23rd International Symposium on High-Performance Computer Architecture (HPCA), Austin, Texas, February, 2017 ***Acceptance rate: $50/224 \approx 22\%$***

[**MES 2015**] <u>Mohamed Ibrahim</u>, Hatem M El-Boghdadi, *Investigating the Viability of Maximum Flexibility Selection Function in Bufferless 2D Meshes*, In the Proceedings of The 3rd International Workshop on Many-core Embedded Systems (MES), Portland, Oregon, June, 2015

[**ICC 2014**] Omar Shoukry, <u>Mohamed Ibrahim</u>, John Tadrous, Hesham El Gamal, Tamer ElBatt, Nayer Wanas, Yaser Elnakieb, and Mohamed Khairy *Proactive Scheduling for Content Prefetching in Mobile Networks*, In the Proceedings of IEEE International Conference on Communications (ICC), Sydney, Australia, June, 2014 ***Acceptance rate: $995/2,608 \approx 38\%$***

[**MobiSys 2013**] <u>Mohamed Ibrahim</u>, Omar Shoukry, Hesham El Gamal, Tamer ElBatt, Nayer Wanas, Mohamed Abdel Raouf, Mohamed Zakaria, Ahmed Abdel Kader and Hakem Zayed *Demo: PAUL Proactive Automated mobile User centric content deLivery*, In the Proceedings of The 11th International Conference on Mobile Systems, Applications, and Services (MobiSys), Taipei, Taiwan, June, 2013

TECHNICAL STRENGTHS

- **Programming** C++, Python, Java, OpenMP, MPI, MATLAB

- **Tools** GPGPU-Sim, gem5

TEACHING EXPERIENCE

- **Teaching Assistant@W&M**, CS 421, Database Systems   **Spring 2017**
- **Teaching Assistant@W&M**, CS 424/524, Computer Architecture   **Fall 2016**
- **Teaching Assistant@W&M**, CS 421, Database Systems   **Spring 2016**
- **Teaching Assistant@W&M**, CS 131, Concepts of Computer Science   **Spring 2016**

REFERENCES

- **Adwait Jog**
  McGlothlin-Street Hall 111, College of William & Mary
  Email: adwait@cs.wm.edu
  Contact Number: +1-757-221-1434