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DEYAAELDEEN ALMAHALLAWI

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EMPLOYMENT

Instructor/Associate Instructor — **Indiana University** — **Fall 2014 – Present**

- Courses: Introduction to Computer Science, Compilers (graduate), and Computer Networks (graduate).
- Gave half of the lectures of the compilers and was the Head TA for Computer networks.

Research & Development Engineer — **MESC for Research and Development** — **August 2011 – July 2013**

LibCAD

- Increased the detection accuracy of LibCAD for cancer tumors, now it is on par with other commercial CADs.
- Implemented many machine learning and image processing algorithms in C++ and MATLAB.

Software Engineer Intern — **Nile University** — **Summer 2009 – 2010**

- Developed the NU bioinformatics cloud service (NUBIOS) using Javascript, jQuery, and Java.

EDUCATION

Cairo, Egypt — **Helwan University** — **Fall 2007 – May 2011**

- B.Sc. in Computer Science, May 2011. GPA: 3.34
- Thesis: Secure Framework for Distributed Privacy-Preserving Machine Learning

Bloomington, IN — **Indiana University** — **Fall 2013 – Present**

- Ph.D. in Computer Science, May 2018 (expected)
- M.Sc. in Computer Science, May 2015. GPA: 3.4
- Graduate Coursework: Foundations of Cryptography; Algorithms; Artificial Intelligence; Advanced Databases; Computer Networks; Computing Theory; Programming Languages Principles; Programming Language Foundations; Compilers; Metaprogramming; Software Specification & Verification.

RESEARCH EXPERIENCE

Publications

- Andre Kuhlenschmidt, Deyaaeldeen Almahallawi, and Jeremy Siek. **Towards Absolutely Efficient Gradually Typed Languages**. Scripts to Programs (STOP) 2015.

Posters

- Secure Framework for Distributed Privacy-Preserving Machine Learning. Joint Summer Schools on Cryptography and Principles of Software Security, Pennsylvania State University, PA, 2012.

Projects

- **Efficient Gradual Typing** (2015). Studying the essential efficiency of gradual typing by constructing a prototype compiler in which we can implement approaches to minimizing overheads. Racket, Haskell, Bash
- **Distributed Reversible Computing** (2013-2014). Worked on a language for distributed reversible computing that provides dynamic channel creation and treats "speculation" as first class construct. Scala
- **Distributed Privacy-Preserving Machine Learning** (2011). Built a framework for distributed private ML using differential privacy and fully homomorphic encryption over integers. Mathematica

COURSE PROJECTS

- Optimizing Compiler from a subset of Scheme R6RS to x86_64. Chez Scheme, nanopass.
- Full bittorrent client and a port scanner. C++11.
- Compiler from a statically-typed language to all possible gradually-typed variants of the input program. Haskell.

AWARDS

- ACM SIGPLAN Programming Languages Mentoring Workshop Scholarship, 2014
- Honor roll of top students at Faculty of Computers and Information, Helwan University, 2008

Languages and Technologies

- Haskell; Coq; Racket; C++; C; SQL; JavaScript; MATLAB; X86-64
- valgrind; gdb; emacs; git; tmux