Rethinking RAM: Testing alternative models of computation

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1 Project Summary

General Area: Models of Computation in Algorithms

Keywords: RAM, computational models, benchmark

Question: The RAM model of computation is the traditionally assumed environment of most algorithm analysis, but it is questionable whether it serves as an accurate model of modern computers. This project will experimentally test the RAM model versus the recently proposed VAT model. *Is Jurkiewicz and Mehlhorn's Virtual Address Translation model experimentally superior to the traditional Random Access Machine for modeling computational complexity?*

Responsibilities:

LACHUT

LAHIRI

Budget: $1,000,000 (!!!)

Deliverables: Progress Report, Final Report, Presentation Slides

2 Biographical Sketch

2.1 David Lachut

2.1.1 Professional Preparation

- University of Maryland, Baltimore County   Computer Science Ph.D. 2015

- University of Arkansas   Physics   B.S. 2009

2.1.2 Appointments

- Research Assistant   University of Maryland, Baltimore County 2012–Present

- Research Assistant   University of Arkansas 2010–2012

2.1.3 Publications

- D Lachut, et al., "Minimizing Intrusiveness in Home Energy Measurement," in BuildSys '12, Toronto, ON, 2012, pp 56-63. (Best Paper Nominee)

- S Rollins, et al., "A Mobile System for Annotation of Home Energy Data," UMBC CSEE Technical Report TR-12-CS-03 [under submission]

- A Nelson, et al., "Wearable Multi-sensor Gesture Recognition in Assistive Devices for Paralysis Patients," UMBC CSEE Technical Report TR-12-CS-01

2.1.4 Collaborators and Other Affiliations

Collaborators

- Nilanjan Banerjee
  Department of Computer Science and Electrical Engineering
  University of Maryland, Baltimore County

- Lazeeb Choudhury
  Kevin Moran
  Simon Piel

Sami Rollins
Yucheng Xiong
Department of Computer Science
University of San Francisco

Graduate Advisor

- Nilanjan Banerjee
  Department of Computer Science and Electrical Engineering
  University of Maryland, Baltimore County

2.2 Kaustav Lahiri

2.2.1 Professional Preparation

- University of Maryland, Baltimore County   Computer Science

- University of

2.2.2 Appointments

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2.2.3 Publications

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2.2.4 Collaborators and Other Affiliations

Collaborators

- Collab
  Department of Computer Science and Electrical Engineering
  University of Maryland, Baltimore County

Graduate Advisor

- Adv
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  University of Maryland, Baltimore County