

CURRICULUM VITAE

G. Ayorkor Korsah

(formerly G. Ayorkor Mills-Tettey)

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Education and Qualifications

Robotics Institute, Carnegie Mellon University, Pittsburgh, PA

Doctor of Philosophy (Ph.D.), Robotics and Artificial Intelligence, February 2011 (expected)

Master of Science (M.S.), Robotics and Artificial Intelligence, May 2006

- Ph.D. Thesis working title: “*Optimization Approaches to Constrained Routing and Coordination*”

Thayer School of Engineering, Dartmouth College, Hanover, NH

Bachelor of Engineering (B.E.), Master of Science (M.S.), Engineering, June 2003

- M.S. Thesis: “*A Security Framework for the Agent-Based Environment for Linking Simulations*”
- B.E. Team Project: “*A Mobile Noise Monitoring System for the Lebanon Municipal Airport*”

Dartmouth College, Hanover, NH

Bachelor of Arts (B.A.), Computer Science modified with Engineering, June 2001

- Graduated Summa Cum Laude with High Honors in Computer Science. GPA: 3.96/4.0
- Senior Thesis: “*Mobile Voice-over-IP (MVOIP): An Application-level Protocol*”

Teaching Experience

Guest Lecturer, “Artificial Intelligence”, April 2010

Carnegie Mellon University in Qatar Computer Science Department, Doha, Qatar

- Presented two lectures of the undergraduate course.

Guest Lecturer, “iSTEP: Technology Field Research in Developing Communities”, January 2010

Carnegie Mellon University School of Computer Science, Pittsburgh, PA, USA

- Taught two lectures and prepared an assignment for the joint undergraduate/graduate course.

Teaching Assistant, “Robotics Motion Planning”, September – December 2006

Carnegie Mellon University Robotics Institute, Pittsburgh, PA, USA

- Graded assignments and presented select lectures for the graduate-level course.

Visiting Lecturer, “Introduction to Robotics and Artificial Intelligence” June – September 2006

Ashesi University Computer Science Department, Accra, Ghana

- Collaborated with Carnegie Mellon University faculty and Ashesi University faculty to design and teach the first university-level robotics course in Ghana.

Visiting Lecturer, Computer Science, September 2003 – August 2004

Ashesi University Computer Science Department, Accra, Ghana

- Taught Data Structures and Human Computer Interaction courses to undergraduate juniors
- Researched continuing education needs among selected industry professionals, and taught a pilot continuing education web application development course.

Research Projects

Automated Tools for Effective Team Coordination in Emergency Response, August 2008 - present
Robotics Institute, Carnegie Mellon University, Pittsburgh, PA and Doha, Qatar

- Designed novel mathematical models and implemented planning algorithms for constrained multi-agent task allocation, scheduling and routing.
- Research advisors: Dr. Anthony Stentz and Dr. M. Bernardine Dias
- Project Funding: Qatar National Research Fund (QNRF)

Reliable and Efficient Long-Range Autonomous Rover Navigation, August 2004 – July 2008
Robotics Institute, Carnegie Mellon University, Pittsburgh, PA

- Designed and implemented algorithms for optimal energy-constrained path planning for rovers.
- Research advisors: Dr. Anthony Stentz and Dr. M. Bernardine Dias
- Project Funding: NASA

Project Kané, December 2004 – December 2008

TechBridgeWorld, Carnegie Mellon University, Pittsburgh, PA

- Designed and coordinated the implementation of various phases of a field study to investigate the effectiveness of an automated reading tutor in improving child literacy in Accra, Ghana.
- Research advisors: Dr. M. Bernardine Dias and Dr. Jack Mostow
- Project Funding: Private donation to TechBridgeWorld

Agent-Based Environment for Linking Simulations (ABELS), June 2001 – June 2003

Thayer School of Engineering, Dartmouth College, Hanover, NH

- Designed and implemented the security architecture and other aspects of the ABELS system.
- Research advisor: Dr. Linda Wilson
- Project Funding: Cold Regions Research Lab (CRREL)

Mobile Voice-Over-IP, September 2000 – June 2001

Computer Science Department, Dartmouth College, Hanover, NH

- Designed and implemented an application-level protocol for call hand-off in mobile voice-over-IP on an 802.11 wireless network.
- Research advisor: Dr. David Kotz.

Professional Development

Participated in the “Educational Data Mining” track (July 2010) and in the “Intelligent Tutoring Systems Development” track (July 2009) of the Pittsburgh Science of Learning Center (PSLC) annual week-long summer school at Carnegie Mellon University.

Selected Internships

Program Manager Intern, June – September 2000

Microsoft Corporation, Redmond, WA

- Drove project to port a new web-based learning product to non-desktop platforms. Authored functional specifications, and created prototypes for the tablet computer and the PocketPC.

Information Technology Consulting Intern, January – March 2000

PriceWaterhouseCoopers LLP, Tampa, FL

- Evaluated computer-based training (CBT) course content and vendors, analyzed usage of self-paced learning courses across global company, and provided CBT support services.

Honors and Awards

Awards

“Honorable Mention” Carnegie Mellon Graduate Student Service Award, March 2010

Scholarships and Fellowships

TEDGlobal Fellowship, 2007: Sponsorship to attend TEDGlobal conference in Arusha, Tanzania.

Google Anita Borg Scholarship, 2006-2007: \$10,000 tuition scholarship for women in computing.

Tau Beta Pi Fellowship, 2004-2005: Merit-based fellowship (non-stipend) for graduate education.

Thayer School of Engineering George Austin Colligan Fellowship 2001-2002: Tuition fellowship.

Microsoft Scholarship 2000-2001: Full tuition scholarship for women in computing.

Dartmouth College Rufus Choates Scholarship, 1998-2000: Honor conferred on top 5% of class.

Honor Societies

Tau Beta Pi Engineering Honor Society (inducted 2002): Recognizing “distinguished scholarship and exemplary character [as a student] in the field of engineering.”

Phi Beta Kappa Society (inducted 2000): Recognizing “excellence in the liberal arts and sciences.”

Golden Key Honor Society (inducted 1999): Recognizing “outstanding academic achievement.”

Publications

Refereed Journals

G. Ayorkor Korsah, Jack Mostow, M. Bernardine Dias, Tracy Morrison Sweet, Sarah M. Belousov, M. Frederick Dias, Haijun Gong, “Improving Child Literacy in Africa: Experiments with an Automated Reading Tutor,” *Information Technologies & International Development*, vol 6 no. 2, 2010.

G. Ayorkor Mills-Tettey and Linda F. Wilson, “Security Issues in the ABELS System for Linking Simulations,” *Simulation* volume 79 number 5, 2003, pp. 328-342

Refereed Conferences

G. Ayorkor Korsah, Balajee Kannan, Imran Fanaswala, M. Bernardine Dias, “Enhancing Market-Based Task Allocation with Optimal Initial Schedules,” 11th Intelligent Autonomous Systems Conference, August 2010.

G. Ayorkor Mills-Tettey, Jack Mostow, M Bernardine Dias, Tracy Morrison Sweet, Sarah M. Belousov, Malcolm Frederick Dias, and Haijun Gong, "Improving Child Literacy in Africa: Experiments with an Automated Reading Tutor," 3rd IEEE/ACM International Conference on Information and Communication Technologies and Development (ICTD2009), April, 2009. [Honorable Mention Student Paper Award].

M. Bernardine Dias, Brett Browning, G. Ayorkor Mills-Tettey, Nathan Amanquah, and Noura El-Moughny, "Undergraduate Robotics Education in Technologically Underserved Communities," 2007 IEEE International Conference on Robotics and Automation, April, 2007, pp. 1387-1392.

G. Ayorkor Mills-Tettey, Anthony Stentz, and M. Bernardine Dias, "DD* Lite: Efficient Incremental Search with State Dominance," Twenty-First National Conference on Artificial Intelligence (AAAI-06), July, 2006, pp. 1032-1038.

M. Bernardine Dias, G. Ayorkor Mills-Tettey, and Thrishantha Nanayakkara, "Robotics, Education, and Sustainable Development," 2005 IEEE International Conference on Robotics and Automation, April, 2005, pp. 4248 - 4253.

G. Ayorkor Mills-Tettey, Greg Johnston, Linda F. Wilson, Joseph M. Kimpel and Bin Xie, "The ABELS system: designing an adaptable interface for linking simulations," Winter Simulation Conference 2002, pp. 832-840.

G. Ayorkor Mills-Tettey, David Kotz. "Mobile Voice over IP (MVOIP): An Application-level Protocol for Call Hand-off in Real Time Applications". 21st IEEE International Performance, Computing, and Communications Conference (IPCCC), April 2002. [Best Student Paper Award]

Kenneth Kaliski, Ayorkor Mills-Tettey, Efrosyni Seitaridou, Robert Collier. "Low-Complexity Continuous Noise Monitoring System for Communities, Small Airports and Remote Areas". 2001 National Conference on Noise Control Engineering (NoiseCon), October 2001. [Best Student Paper Award]

Refereed Workshops & Symposia

G. Ayorkor Korsah, M. Bernardine Dias, Anthony Stentz, "Optimal Vehicle Routing and Scheduling with Precedence Constraints and Location Choice," IEEE International Conference on Robotics and Automation (ICRA) 2010 Workshop on Intelligent Transportation Systems, May 2010.

G. Ayorkor Mills-Tettey, Anthony (Tony) Stentz, and M Bernardine Dias, "Continuous-field path planning with constrained path-dependent state variables," IEEE International Conference on Robotics and Automation (ICRA) 2008 Workshop on Path Planning on Costmaps, May, 2008.

G. Ayorkor Mills-Tettey, M. Bernardine Dias and Brett Browning, "Robotics Education in Emerging Technology Regions," AAAI Spring Symposium "Robots and Robot Venues: Resources for AI Education," March 2007.

G. Ayorkor Mills-Tettey, M. Bernardine Dias, Brett Browning, and Nathan Amanquah, "Teaching technical creativity through Robotics: A case study in Ghana," Workshop on AI in ICT for Development (ICTD) at the Twentieth International Joint Conference on Artificial Intelligence (IJCAI 2007), January, 2007.

M. Bernardine Dias, G. Ayorkor Mills-Tettey, and Joe Mertz, "The TechBridgeWorld Initiative: Broadening Perspectives in Computing Technology, Education and Research," CWIT '05: Proceedings of the international symposium on Women and ICT: Creating Global Transformation, ACM Press, New York, NY, June, 2005.

G. Ayorkor Mills-Tettey and Linda F. Wilson, "Security Issues in the ABELS System for Linking Distributed Simulation," Annual Simulation Symposium 2003, pp. 135-144.

John P. Murphy, G. Ayorkor Mills-Tettey, Linda F. Wilson, Greg Johnston, and Bin Xie, "Demonstrating the ABELS System Using Real-World Scenarios," International Symposium on Applications and the Internet (SAINT) 2003, pp. 74-83.

Technical Reports

G. Ayorkor Mills-Tettey, Anthony Stentz, and M. Bernadine Dias, “The Dynamic Hungarian Algorithm for the Assignment Problem with Changing Costs,” tech. report CMU-RI-TR-07-27, Robotics Institute, Carnegie Mellon University, July, 2007.

Presentations, Workshops and Panels

Panel presentation (with Rahul Tongia) “Information, Computing, and Communications: Keys to Sustainable Global Development,” AAAS Annual Meeting, Science and Technology from a Global Perspective, Boston, February 17, 2008.

Presentation (with Ling Xu) “Robots to Reading: Impacting the World with Technology,” SciTech Spectacular 2007, Carnegie Science Center, Pittsburgh, PA, November 2007

Panelist, “Innovations and Education in Development,” 13th Annual International Development Conference, Harvard University, Cambridge MA, April 2007

Keynote address (with Carol Sisson and Eakta Jain), Cisco Networking Academy “Girls get IT” event, Carnegie Mellon University, Pittsburgh PA, March 2007

Panelist, “Ripple Effects: Increasing the Diversity of Creators and Consumers of Computing Technology”, Grace Hopper Celebration of Women in Computing, San Diego MA, October 2006.

Leadership, Activities, and Community Involvement

Graduate Student Representative, TechBridgeWorld, Carnegie Mellon University, 2004 - present

- Participate in the design, support and promotion of projects aimed at increasing the diversity of producers and consumers of technology, particularly in the developing world.

Member, Women@SCS, Carnegie Mellon University, 2004 - present

- Participate in outreach activities to support and encourage the participation of women and girls in Computer Science.

Member, Interfaith Leadership Council, Carnegie Mellon University, 2007 - present

- Collaborate with leaders of diverse religious organizations on campus to organize events promoting interfaith dialogue and amity on campus.

Local Spiritual Assembly, Bahá'í Community of Pittsburgh, PA, 2005 - present

- Serve on the 9-member consultative body responsible for guiding and supporting activities of the local Bahá'í community. Recording Secretary (2006 – 2007), Chairperson (2008 – present)

Children's Class Teacher, Bahá'í Community of Pittsburgh, PA, 2009 - present

- Co-teach neighborhood moral-education classes for children of diverse backgrounds.

Training Institute Coordinator, Bahá'í Community of Pittsburgh, PA, 2007 - 2010

- Coordinated and provided support for tutors of study circles in a decentralized community education process aimed at enhancing capacities for service.