

# Thilanka Munasinghe

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## EDUCATION

**Master of Science in Mechanical Engineering** (Expected Graduation: August 2015)

West Virginia University, WV, USA.

Advisor: Dr. John Kuhlman.

Thesis: Studying the Characteristics of Bubble Motion in Pool Boiling in Microgravity Conditions Under the Influence of a Magnetic Field.

**Master of Science in Applied Mathematics** (Expected Graduation: August 2015)

West Virginia University, WV, USA

Advisor: Dr. Marjorie Darrah

Thesis: “Cooperative Control of Multi-Agents Optimization (UAVs) Using Genetic Algorithms”.

**Bachelor of Science in Aerospace Engineering** (Graduated in 2008)

West Virginia University, WV, USA.

Advisor: Dr. John Loth.

## WORK EXPERIENCE

2014 Aug – Present

**CodeLab Instructor (Android Programing) and Graduate Intern** at WVU Office of Innovation, Entrepreneurship and Commercialization (LaunchLab).

2014 Feb – 2014 May:

**Visiting Research Student at Laboratory for Autonomous Marine Sensing Systems, MIT.**

I worked with the MIT underwater robotic research group to develop autonomous decision-making path planning software in C++ for Autonomous Under Water Vehicles (AUVs).

2013 May – 2013 Aug:

**Visiting Research Student at Laboratory for Autonomous Marine Sensing Systems, MIT.**

I developed a smooth curve path-planning algorithm for MIT MOOS-IvP open source software for AUVs.

2011 May – 2013 Jul:

**Research Assistant at Mathematics Department, WVU**

I developed Genetic Algorithms (GA) and undertook Genetic Programming for Cooperative Control Systems, Task Management, and Multi-Agent Systems.

- 2012 Jan – 2012 Aug: **Research Intern at Information Research Corporation, Fairmont, WV.**  
I integrated Genetic Algorithm software systems to a ground control station, and tested them with Unmanned Aerial Vehicles (UAVs).
- 2010 Jan– 2011 May: **Research Assistant at Mechanical and Aerospace Engineering.**  
I conducted microgravity experiments to study the Kelvin Force Effect on Bubbles in paramagnetic liquids under microgravity conditions.
- 2005 Aug– 2009 May: **Resident Assistant at Dadisman Hall.**  
I was a student mentor and staff member at the Dadisman Hall.
- 2003 Jun – 2004 Aug: **Intern at Arthur C. Clarke Institute for Modern Technology, Moratuwa, Sri Lanka.**  
I conducted meteorite testing and studied the characteristics and composition of meteorites found in Sri Lanka.

## TEACHING EXPERIENCE

- Fall 2014 & Spring 2015: Android Programming Instructor  
Fall 2011: Math Tutor at Mathematics Learning Center, Depart of Mathematics WVU
- Aug 2005 – May 2010: Math and Physics Tutor at WVU Engineering Learning Center  
Summer & Fall 2009: Instructor for Engineering 102 (Intro to Engineering II)  
Spring 2009: Instructor for Engineering 101 (Intro to Engineering I)  
Fall 2008: Teaching Assistant University 101

## PROGRAMMING SKILLS

- Proficient in Object Oriented Programing using JAVA and C++
- Proficient in Mobile Application Development using the Android Platform
- Proficient in Scientific Computing using Matlab and R
- Proficient in Design Tools such as AutoCAD and Solid Works

## AWARDS

- **Best Business/Project Idea and Most Technically Interesting** Project Award at the Big Travel Data Hackathon 2013, organized by Hack Reduce for *FlightR*.
- **Resident Assistant (RA) of the Year** Award of West Virginia University Dadisman Hall, 2008-2009 Academic Year.
- **Recognition Award from Sir Arthur. C. Clarke** for the meteorite and planetary science research 2003.

## INVITED TALKS

- “Fluids and Bubble Motion Behavior in Microgravity Conditions” at Arthur C. Clarke Institute for Modern Technology, Sri Lanka; May 2010.
- “High Altitude Balloon Satellites” at American National College, Sri Lanka; June 2007.
- Guest Speaker at S.Thomas’ College Mt.Lavinia to address the College Teaching Staff on “How to Teach High School Students Effectively” invited by Warden Dr. Indra De Soysa, Jan 2014.

## PUBLICATIONS

### Journal Publications

- Using Genetic Algorithms for Tasking Teams of Raven UAVs. Journal of Intelligent and Robotics Systems, *Marjorie Darrah, Edgar Fuller, Thilanka Munasinghe, Kristin Duling, Mridul Gautam, Mitchell Wathen*. 20<sup>th</sup> July 2012.
- A Flexible Genetic Algorithm System for Multi UAV Surveillance: Algorithm and Flight Testing. Journal Unmanned Systems. *Marjorie Darrah, Jay Wilhelm, Thilanka Munasinghe, Mitch Wathen, Steve Yokum, Eric Sorton*. 7<sup>th</sup> January 2015.

### Conference Publications

- Dynamic and Kinematic Characteristics of Bubble Flow Motion in Paramagnetic Liquid under Microgravity Conditions. International Conference on Fluid Flow Dynamics (ICFD), Sendai, Japan, *Thilanka Munasinghe*, November 2009.
- Transformation Mapping of Bubbles’ 2-D Circular Shape to an Elliptical Shape Under Influence of a Magnetic Field in Pool Boiling in Microgravity Conditions. 5<sup>th</sup> MIT Conference on Computational Fluid and Solid Mechanics, Massachusetts Institute of Technology (MIT), Cambridge, MA, *Thilanka Munasinghe*. June 2009.
- Investigating Bubble Expansion in Pool Boiling Under Influence of Magnetic Field in Microgravity Conditions. World Scientific and Engineering Academy and Society, (WSEAS), Moscow, Russia, *Thilanka Munasinghe, Sanket Joshi*. August 2009.
- Studying the Characteristics of Bubble Motion in Pool Boiling in Microgravity Conditions Under the Influence of a Magnetic Field. Recent Advances on Space Technology (RAST), IEEE – AIAA Joint Conference, Istanbul, Turkey. *Thilanka Munasinghe*. June 2009.
- Investigating Bubble Behavior in Pool Boiling in Microgravity Conditions, World Congress on Engineering (WCE), International Association of Engineers (IAENG), Imperial College, London, UK, *Thilanka Munasinghe*, July 2008.

### Poster Presentations

- Efficient Path Planning Algorithms for AUVs. Google Research Labs Conference, June 2014.
- Laminar to Turbulent Transition in Fluid Flow in Boiling, AIAA Young Professional and Student Education Conference, John Hopkins University, Baltimore, Maryland, November, 2008.
- Boiling in Microgravity, AIAA Student Conference, University of Maryland, College Park, April, 2008.

- “Research Day at Capitol - 2008”, Governor’s Chamber, Charleston, West Virginia. January 2008.
- “WV-NANO”, West Virginia University, Alumni Center, May 2009.

## PROFESSIONAL SERVICE

Mar 2014 – May 2014:	Member of the MIT Cricket Team
Aug 2005 – May 2008:	Senior Mentor at Office of International Students and Scholars
Jul – Dec 2008:	Member of the Student Conduct Board of WVU
2007 – 2008:	Vice President, International Student Association WVU
2007 – 2009:	Member of the WVU Cricket Club
2007 – 2008:	Member of Multi-Cultural Leadership Club WVU
Aug 2005 – Dec 2008:	Member of Hall Council, Dadisman & Stalnaker Hall
2000 – 2004:	Member of Sri Lanka Student Red Cross Society

## REFERENCES

### Mr. Matt Harbaugh

Director at WVU, Office of Innovation, Entrepreneurship and Commercialization (LaunchLab)

[Matt.Harbaugh@mail.wvu.edu](mailto:Matt.Harbaugh@mail.wvu.edu)

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### Dr. Marjorie Darrah

Professor at Department of Mathematics, WVU

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### Dr. Robin Hensel

Assistant Dean of College of Engineering and Mineral Resources, WVU

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### Prof. Eddie Fuller

Chairman Department of Mathematics, WVU

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### Prof. David Stewart

Associate Vice President for Student Affairs and Global Services, WVU

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### Dr. Arjuna Balasuriya

Research Scientist, MIT

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