Bonolo Mathibela

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PROFESSIONAL SUMMARY

- Rhodes Scholar committed to transforming society through advancing robotics and technology
- Passionate about developing algorithms and designs that solve hard problems

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EDUCATION

DPhil (PhD) Engineering Science in Mobile Robotics, **University of Oxford**   04/2014
- Thesis: "Situational awareness in autonomous driving: learning to read the road"
- Technical team member for the development of RobotCar, Oxford's self-driving car

BSc Mechatronics Engineering (with first class honors)**, University of Cape Town**   12/2008
- Coursework: Control Systems, Dynamics, Embedded Systems, Electronics, Calculus, Robotics

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PROFESSIONAL EXPERIENCE

Research Scientist, IBM Research, Johannesburg, South Africa   04/2015 – Present
- Developed algorithms for optimising traffic congestion, supervised interns
- Member of IBM's strategic Global Technology Outlook (GTO) Transportation Rethink
- Completed IBM/GIBS Intermediate Leadership Programme (University of Pretoria)

Graduate IT Officer, University of Oxford, **Oxford, United Kingdom**   10/2012 – 12/2013
- Provided IT help-desk support and training for students and staff

Volunteer Mechanical Engineer, OM Ships, Cambodia, Thailand, Malaysia   07/2009 – 09/2009
- Optimised the timing sequence of the ship's main engine, humanitarian work

Researcher, Council of Scientific and Industrial Research, Pretoria, South Africa   02/2009 – 06/2009

HONORS

- ROSCon (Robot Operating System Conference) Diversity Scholarship   2016
- IBM Research nominated participant: Grace Hopper Celebration of Women in Computing Conference   2016
- IBM Eminence and Excellence Award (Treasured Wild ducks)   2015
- New College Graduate Scholarship (Oxford University)   2013
- National Research Foundation Free-standing scholarship for study abroad (Oxford University)   2013
- Rhodes Scholarship   2008
- Dean's Merit List (University of Cape town)   2005 – 2008

TECHNOLOGY SUMMARY

Programming: Java, MATLAB, C/C++, JavaScript, HTML, XML
Systems: Unix (Mac OS X), Linux, Windows

RECENT ACTIVITIES

- **Participant,** European Innovation Academy**,** France   2016
- **Regional Selection Committee Member,** Rhodes Scholarships, South Africa   2015
- **Participant,** Lean Startup Machine Johannesburg (won 2nd place in the competition)   2015
- **Invited Speaker**, Skopje University and Ivanov Leadership School, Macedonia   2011
- **President,** Engineers Without Borders Oxford**,** United Kingdom   2010 – 2011

Personal Statement   **Bonolo Mathibela**

I am a robotics engineer passionate about developing designs and solving hard problems that tangibly and positively impact society.

The prospect of turning an idea into a tangible product appeals enormously to me. I have been fortunate, as an engineer, to have experienced this thrilling phenomenon on several occasions. I remember the first time as though it were yesterday. I was a keen student, sitting at my desk, staring at a blank piece of paper with discrete electronic components and a microprocessor scattered nearby. Over time, I began to sketch out what would become a circuit design for a pulse oximeter. Later, I built and programmed this circuit and used it to measure my own blood oxygen saturation and heart rate levels. Building this product from scratch left a huge impression on me, and since then I have committed my life to transforming society through advancing robotics and technology.

My journey thus far led me to pursue a BSc in Mechatronics Engineering at the University of Cape Town, followed by a PhD in Robotics at the University of Oxford, where I was a Rhodes Scholar.
During my time at Oxford I worked extensively on image processing and computer vision (with machine learning) whilst researching perception in autonomous vehicles. Specifically, my thesis made contributions to scene understanding and interpretation in autonomous driving. I was also a technical team member of RobotCar, a self-driving electric vehicle created from an ordinary Nissan Leaf, at Oxford University. At IBM Research, I develop algorithms for autonomously improving road traffic flow in resource constrained environments, as well as wildfire risk prediction in regions where the vegetation is both fire prone and fire dependent.

Outside of my job, I take keen interest in the startup community including coming second place in the Lean Startup Machine Weekend in Johannesburg, and completing the European Innovation Academy Program in France (an extreme accelerator for IT-related startups). The knowledge I acquired from my involvement includes the importance of product market fit, lean methodology, digital marketing, A/B testing, valuations, and pitching to investors. These lessons complement what I've also learned in the corporate world since joining IBM Research South Africa as the first employee. I was able to contribute to the overall strategy of the research laboratory, the hiring process, defining the culture and engaging external partners through business negotiations.

I am excited about what the future holds. Machine learning continues to advance at an alarming rate, along with access to computational power and storage. In the past decade innovators focused on searching through and indexing the world's data. Now we can look forward to teaching machines to make reliable inferences from it. I am elated to be a part of this future. If you share my excitement, I would love to hear from you.