APOSTOLOS D. KOTTAS

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SUMMARY

Electrical hardware engineer with understanding of high and low-level software. Experienced in hardware design of miniature mobile devices. Specializing in power conversion and battery management, mixed-signal circuits, DC motors and control, RF and microwave engineering, mathematical modeling, and overall realization of complex embedded systems.

EDUCATION

University of Minnesota, Minneapolis

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| Master of Science in Electrical Engineering | June 2012 |

**Thesis:** *Energy-Efficient Designs and Principles for Miniature Mobile Robotic Systems*

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| Bachelor of Science in Mathematics | May 2007 |

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| Bachelor of Electrical Engineering | Dec. 2006 |

WORK EXPERIENCE

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| Center for Distributed Robotics | Dec. 2003 – Aug. 2011 |
| [*http://distrob.cs.umn.edu*](http://distrob.cs.umn.edu) | Research Assistant |

* Collaborated with teams of multidisciplinary engineers and students on a wide range of projects
* Integrated Li-ion smart-battery technology into 5 different (custom and commercial) robotic platforms
* Presented research projects to academic institutions, companies and other organizations
* Established a Robotics Technology Camp and outreach program for junior high-school students
* Led all electrical engineering efforts around several complex mobile robots, from concept to production – including architecture, design and manufacturing
* Designed and realized all electronics onboard a mobile underwater robotic system to assess water contaminants – in response to the Deepwater Horizon Gulf Oil spill of Summer 2010
* Designed and developed a reconnaissance robotic platform, from which we formed ReconRobotics Corp.
* Authored journal articles, conference papers, and grants
* Interviewed, managed, and supervised new students

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| ReconRobotics Corp. | Mar. 2005 – Jan. 2007 |
| [*www.reconrobotics.com*](http://www.reconrobotics.com) | Co-founder, owner, shareholder |

* Co-founded the company
* Wrote initial market assessment
* Designed, implemented, and optimized analog, digital, and RF circuits in the systems
* Conducted product demonstrations, and coordinated trade show exhibitions of products

AWARDS

* Full graduate research assistantship funding [from Sept. 2007 to Aug. 2011]
* Graduate student essay scholarship awarded to attend the Int'l Conference on Robotics and Automation in Japan [May 2009]
* Recipient of an Undergraduate Research Opportunity Program (UROP) grant [Apr. 2004]
* Awarded study abroad essay scholarship for a computer graphics global seminar in China [May 2004]

SKILLS

Proficiencies:

* Native in English and Greek (bilingual); basic French
* Accustomed to interdisciplinary collaboration, project leadership and management across a wide range of engineering and administrative projects
* Experienced in electromechanical system development
* Experienced in the entire PCB realization process { from circuit design, board layout and CAD modeling, to contracting designs to board houses [for fabrication] and assembly houses [for population]
* Board-level hardware and software design and prototyping of miniature embedded systems
* Mathematical problem formulation, modeling, electrical design optimization

Hardware:

* AC/DC and DC/DC power converters, battery management and fuel-gauging circuit design
* Over 5 years experience designing with Texas Instruments *bq*-family Li-ion battery fuel-gauges
* Vector network analysis for impedance matching RF and microwave systems
* Experience designing with Gumstix single-board computers

Software Design:

* Solid understanding of Eagle EDA layout editor; ORCAD and PSPICE Cadence software design suites
* Well-versed in MATLAB programming, and most MathWorks Toolkits
* Some experience with Agilent’s ADS EDA
* Comfortable with C, C++, assembly, and Linux/UNIX

SELECTED PUBLICATIONS

1. Dhull, **Kottas**, Canelon, Dancs, Papanikolopoulos. “Aquapod: A Small Amphibious Robot with Sampling Capabilities." Submitted and accepted to IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2012.
2. **Kottas**, Apostolos, Drenner, Andrew, Papanikolopoulos, Nikolaos. “Intelligent Power Management: Promoting Power Efficiency in Teams of Mobile Robots." Proceedings of the 2009 IEEE International Conference on Robotics and Automation, Kobe, Japan, May 2009.
3. Burt, Drenner, Carlson, **Kottas**, and Papanikolopoulos. “Impact Orientation Invariant Robot Design: An Approach to Projectile Deployed Robotic Platforms." Proceedings of the 2006 IEEE International Conference on Robotics and Automation, Orlando, FL, May 2006.