tunatoksoz

"Eternal sunshine of the opensource mind"

Personal Information

Date of Birth	July 28, 1988
Education Level	MSc. Student at Aeronautics and Astronatics @ MIT. Expected graduation: 2012
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Personal Statement

MIT Engineer. Master's student working at the Aerospace Controls Lab under the supervision of Jonathan P. How. His graduate work is on planning under uncertainty applied to persistent search and tracking problem using Markov Decision Processes. Develops new technologies and simplifies complex problems using his computer scientist skills. Open Source lover, and a committer to well-known projects such as NHibernate and Castle. Actively participates in software related mailing groups and blogs as a writer in .net's biggest collaborative blog codebetter.com/devlicio.us

Education

2010–present	**SM, Aeronautics and Astronautics**, *Massachusetts Institute of Technology*, USA. **Concentration:** Autonomous Systems, Multi-vehicle Health Management **Supervisor:** Prof. Jonathan P. How
2005–2010	**BS, Computer Engineering**, *Bogazici University*, Turkey, Graduated with first rank from the School Of Engineering. GPA 4.00/4.00.

Research Interests

Multi-vehicle health management, planning under uncertainty, autonomous systems, parallel computation, robotics, distributed systems

Experience

2010-2012	**Research Assistant**, *MIT*, MA. Currently working on Multi-Vehicle Health Management and its applications for persistent-search and track tasks. Using Python and C++, implemented a health-aware MDP backed mission planner for multi-UAV and multi-UGV missions.
2009, 2010	**Software Engineer, Intern**, *MIT*, MA. Worked on a path planner using RRT with Java language. Also worked on LiveLAB 3D project which mimics ACL's RAVEN environment. The project was implemented using XNA and C#.
2008	**Software Engineer**, *IBM*, Istanbul, Turkey. Developed a football player performance monitor for a private TV channel. Also developed a rack management application for internal use.
2007	**Visiting Research Assistant**, *Purdue University*, IN. Worked on parallelization of a resonant tunneling diodes simulator using MATLAB for Purdue University Clusters. Also worked on GUI implementation for the simulator.

Publications

J. Redding, T. Toksoz, et. al., *Multi-Agent Planning for Persistent Missions with Automated Battery Management*, *Proceedings of the AIAA Guidance, Navigation, and Control Conference*, August 8-11, 2011.

T. Toksoz, J. Redding, et. al., *Automated Battery Swap and Recharge to Enable Persistent UAV Missions*, *Proceedings of the Infotech@Aerospace 2011*, March 29–31, 2011.

Projects

Multi-vehicle Health Management, *Designed and implemented decision making software for a team of unmanned ground and aerial vehicles that improves mission-level functional reliability through self-awareness. Also done embedded/realtime system development for flight tests.*

Keeping Tabs, *Currently working on an an Android application that helps people to keep track of their tabs and personal expenses. Still in early phases of development.*

Live Lab 3D, *Designed and implemented a 3D simulation environment that mimics the functionality available in ACLs RAVEN. Used Visual C# with Microsoft XNA. Also implemented similar functionality using Python for general lab use.*

Path Planner, *Designed and implemented path planning algorithms on Robotino platform using Player/Stage/Gazebo for senior project. Algorithms varied from RRT to Potential Field and PRMs. Extended to account for environment uncertainity.*

Open-Source Projects

Committer   **NHibernate**, *Opensource O/RM tool for .net platform. It provides a framework for mapping an object-oriented domain model to a traditional relational database. Responsibilities include implementation of Language Integrated Query provider, general maintenance of the code and implementation of new features and performance improvements.*

Committer   **Castle Project**, *Opensource Application Framework for .net platform. Includes an inversion of control container, a web application framework and several other tools. Responsibilities include implementing new features in IoC container, maintaining and improving NHibernate Facility.*

Contributor   **Player/Stage/Gazebo**, *Opensource Robotics Platform.*

Awards and Honors

2010   **Graduated with 1st rank from School of Engineering of Bogazici University. GPA 4.00/4.00**.

2007-2010   **db4o Most Valuable Professional**, *by db4objects*.

2005   **Ranked in the top 1000 among 1.6 million examinees in nationwide University Entrance Examination**.

2002   **Ranked in the top 100 among 900 thousand examinees in nationwide High School Entrance Examination**.

Engineering Skills

Languages   **C#, C++, Python, C, Java, R, MATLAB**.
Unit Testing   **XUnit, NUnit, MSTest, VSTS, Rhino Mocks, Moq**.
DI/IoC/AOP   **Castle, Postsharp, Unity**.
DB Related   **MSSQL, Db4o, SQLite, NHibernate, Entity Framework**.
Platforms   **Windows, Linux (Fedora, Ubuntu)**.
SCMs   **SVN, Git**.

Interests

Skating, basketball, kite flying and cranking up software ideas and prototyping them.

References

Turker Keskinpala, *Program Manager at Microsoft*, turkerkeskinpala@gmail.com.

Christopher Bennage, *Software Development Engineer 2 at Microsoft*, bennage@gmail.com.