

Soshi Iba

Carnegie Mellon University
The Robotics Institute
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OBJECTIVE

A full-time position involving applied research in robotics that will utilize my expertise in human-robot interface, interaction, robot programming, intention recognition, and preferably my strong engineering research and development experience.

EDUCATION

- | | |
|---|---------------------------------|
| Ph.D. , The Robotics Institute
Carnegie Mellon University | May 96-Aug 04
Pittsburgh, PA |
| <ul style="list-style-type: none">• Ph.D. Dissertation: <i>Interactive Multi-Modal Robot Programming</i>• Advisor: Prof. Pradeep Khosla | |
| M.S. , Electrical & Computer Engineering
Carnegie Mellon University | Aug 95-May 96
Pittsburgh, PA |
| <ul style="list-style-type: none">• Masters Project: <i>Vision based robot localization using floor map database</i>• Advisor: Dr. Alonzo Kelly | |
| B.S. , Electrical & Computer Engineering
Carnegie Mellon University | Aug 91-May 95
Pittsburgh, PA |
| <ul style="list-style-type: none">• Received University Academic Honors• Received Carnegie Institute of Technology Research Honors• Honors Research Project: <i>Mobile-robot elevator riding</i>• Advisor: Prof. Reid Simmons• GPA: 3.79 / 4.00 | |

RESEARCH INTERESTS

- Mechatronics
- Intelligent Robots
- Human-Machine Interaction
- Gesture and Speech Recognition
- Statistical Modeling
- Robot Programming and Architecture

SKILLS

- Computer Languages: C/C++, Java, Visual Basic, Perl, Matlab, LISP, Scheme, Assembly (Motorola), HTML/XML
- Computing platforms: UNIX (RT and non-RT), Win32
- Systems: CORBA, COM, MFC
- Software tools: VisualStudio, Matlab, Maple, GNU tools, Pro/E

RESEARCH EXPERIENCE

Research Assistant

Advanced Mechatronics Lab, The Robotics Institute, Carnegie Mellon University

Advisor: Prof. Pradeep K. Khosla

- Created multi-modal on-line robot programming system for mobile vacuum cleaning robot, and arc-welding robot.
- Developed methodology to model programs stochastically and recognize intended plans to assist users.
- Retrofitted 1/16 model tanks to sensor-based autonomous robots. The task involved design of hardware, motor controller, PC104 interface, and sensor array interface.

May 96–present
Pittsburgh, PA

Visiting Research Scholar

Institute of Industrial Science, University of Tokyo

Advisor: Prof. Katsushi Ikeuchi

- Developed methodology to train, adapt, and recognize hand gestures based on statistical modeling techniques.

May 99–Jan 00
Tokyo, Japan

Research Assistant,

Field Robotics Center, The Robotics Institute, Carnegie Mellon University

Advisor: Dr. Sanjiv Singh, Dr. Alonzo Kelly

- Developed stereo camera calibration and rectification system for unmanned ground vehicle.

May 95–May 96
Pittsburgh, PA

Research Assistant,

Vision and Autonomous Systems Center, The Robotics Institute, Carnegie Mellon University

Advisor: Dr. Takeshi Shakunaga, Prof. Katsushi Ikeuchi

- Assisted programming and evaluation of the SAR RADAR automatic target recognition system.

May–Aug 94
Pittsburgh, PA

PROFESSIONAL

Engineering Intern

Nippon Motorola Ltd.

- Analyzed flash E²PROM failure modes and developed endurance test software for 68HC series microcontrollers.

May–July 93
Sendai, Japan

TEACHING

Teaching Assistant

School of Computer Science, Carnegie Mellon University

15-384 *Robotic Manipulation*

Instructor: Prof. Matthew Mason

Course Topics: computational models of objects and motion, the mechanics of robotic manipulators, the structure of manipulator control systems, planning and programming of robot actions.

- Taught a lecture on selected topics and laboratory section of the course.
- Graded student exams, assignments, and laboratory reports.

Jan–May 99
Pittsburgh, PA

STUDENT RESEARCH SUPERVISION

Bachelor of Science

Tridib Chakravarty

68HC11 microcontroller programming

Electrical and Computer Engineering

Apr–Aug 98

Brian Dougherty

RC tank retrofitting project (mechanical)

Electrical and Computer Engineering

Apr–Oct 98

Elliott Delaye

RC tank retrofitting project (RT-Linux device driver development)

Electrical and Computer Engineering

Apr 98–Mar 99

Anirudh Shah

Design and user-study of a Gesture-based arc-welding robot programming interface

Electrical and Computer Engineering

May 01–Jan 02

Hassaan Khan

Infrared sensor array design and RF data communication

Electrical and Computer Engineering

May 02–Aug 03

Master of Science

Hassaan Khan

Range-sensor array integration for SLAM on AIBO

Electrical and Computer Engineering

Aug 03–Dec 03

HONORS AND AWARDS

<i>IFRR Student Fellowship Award</i> , IFRR 9 th International Symposium on Experimental Robotics	June 04
<i>Anton Philips Best Student Paper Award Finalist</i> , IEEE International Conf. on Robotics and Automation	May 02
<i>Research Fellowship</i> , The Robotics Institute	May 96–present
<i>B.S., with Academic and Research Honors</i> , Carnegie Mellon University	May 95
<i>Carnegie Institute of Technology Dean's List</i> , Carnegie Mellon University	May 93, May 95

SERVICE

Graduate Student Assembly Representative

Carnegie Mellon University

Represented The Robotics Institute in the Graduate Student Assembly.

Duties included:

- Negotiated with cultural organizations in the city for student-rate tickets. (Social Committee)
- Organized graduate student gatherings and blood drives. (Social Committee)

Apr 00–Aug 01

Pittsburgh, PA

Volunteer Japanese Computing Service Administrator

Carnegie Mellon University

Provided various Japanese computing services to the people in CMU and Pittsburgh.

Duties included:

- Served as a chief editor of "Pittsburgh Benricho", a 260-page living guide for Japanese people in Pittsburgh.
- Maintained a server for Japanese web service, bulletin board system, and mailing-list (700+ subscribers).

1993–present

Pittsburgh, PA

PUBLICATIONS

- S. Iba, C. J. J. Paredis, and P. K. Khosla, "Interactive Multi-Modal Robot Programming," International Journal of Robotics Research, 2004. (to appear)
- S. Iba, C. J. J. Paredis, and P. K. Khosla, "Interactive Multi-Modal Robot Programming," in Proceedings of the Ninth International Symposium of Experimental Robotics, Singapore, June 18-21, 2004. (Recipient of the IFRR Student Fellowship Award)
- S. Iba, C. J. J. Paredis, and P. K. Khosla, "Intention Aware Interactive Multi-Modal Robot Programming," in Proceedings of the International Conference on Intelligent Robots and Systems (IROS) 2003, Las Vegas, NV, Oct 27-31, 2003.
- S. Iba, C. J. J. Paredis, and P. K. Khosla, "Interactive Multi-Modal Robot Programming," in Proceedings of the International Conference on Robotics and Automations (ICRA) 2002, Washington, D.C., pp.161-168, May 11-15, 2002. (Finalist for the Anton Philips Best Student Paper Award)
- K. Ogawara, S. Iba, T. Tanuki, H. Kimura, K. Ikeuchi, "Acquiring hand-action models by attention point analysis," in Proceedings of the International Conf. on Robotics and Automations (ICRA) 2001, Seoul, Korea, Vol.4 PP.465-470, May 2001.
- S. Iba, "Robot programming through multi-modal interaction," Ph.D. thesis prospectus, Robotics Institute, Carnegie Mellon University, April 2001. Thesis committee: Pradeep Khosla, Katsushi Ikeuchi, Chris Atkeson, and Chris Paredis.
- K. Ogawara, S. Iba, T. Tanuki, H. Kimura, K. Ikeuchi, "Recognition of Human Task by Attention Point Analysis," in Proceedings of the International Conference on Intelligent Robot and Systems, Kagawa, Japan, Vol.3, pp.2121 - 2126, 2000.
- K. Ogawara, S. Iba, T. Tanuki, H. Kimura, K. Ikeuchi, "Construction of Human Task Model based on Attention Point Analysis using Data Gloves and Stereo Vision," in Proceedings of the 18th Annual Conference of the Robotics Society of Japan, Shiga, Japan, Vol.2, pp.855-856, September, 2000. (in Japanese)
- K. Ogawara, J. Takamatsu, S. Iba, T. Tanuki, H. Kimura, K. Ikeuchi, "Acquiring hand-action models in task and behavior levels by a learning robot through observing human demonstrations," in Proceedings of the IEEE-RAS International Conference on Humanoid Robots, Boston, September 7-8, 2000.
- K. Ogawara, S. Iba, T. Tanuki, H. Kimura, K. Ikeuchi, "Recognition and Performance of Human Task with 9-eye Stereo Vision and Data Gloves," in Proceedings of the Computer Vision and Image Media (CVIM) 2000, Shonan, Japan, June 1, 2000. (In Japanese)
- K. Ogawara, S. Iba, T. Tanuki, Y. Sato, A. Saegusa, H. Kimura, K. Ikeuchi, "Recognition of Human Behaviour using Stereo Vision and Data Gloves," Seisan-Kenkyu, vol. 52(5), pp.225-230, May, 2000.
- K. Ogawara, S. Iba, H. Kimura, K. Ikeuchi, "Recognition of Human Behavior with 9-eye Stereo Vision and Data Glove," in

- Proceedings of the Computer Vision and Image Media (CVIM) 2000, Tokyo, Japan, March 23, 2000. (In Japanese)
- S. Iba, J.M. Vande Weghe, C.J.J. Paredis, P.K. Khosla, "An Architecture for Gesture Based Control of Mobile Robots," in Proceedings of the IROS'99, Kyongju, Korea, pp. 851-857, October 17-21, 1999.

PRESENTATIONS

- "Interactive Multi-Modal Robot Programming," 9th International Symposium on Experimental Robotics, Singapore, June 21, 2004
- "Intention Aware Interactive Multi-Modal Robot Programming," IEEE/RSJ International Conference on Intelligent Robots and Systems, Las Vegas, Nevada, Oct 30, 2003.
- "Interactive Multi-Modal Robot Programming," Vision and Autonomous Systems Center retreat, Carnegie Mellon University, August 04, 2003.
- "Interactive Multi-Modal Robot Programming," IEEE International Conference on Robotics and Automations, Washington, D.C., May 13, 2002.
- "Interactive Multi-Modal Robot Programming," Computer Vision Lab seminar, Institute of Industrial Science, University of Tokyo, Tokyo, January 06, 2002.
- "An Architecture for Gesture Based Control of Mobile Robots," IEEE/RSJ International Conference on Intelligent Robots and Systems, Kyongju, Korea, October 19, 1999.

PERSONAL

Gender: Male
Citizenship: Japan
Born: 1972 in Tokyo, Japan
Family: Married, with son