

# NIKOLAOS MAVRIDIS

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## EDUCATION

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2002 – 2007 MIT Cambridge, Massachusetts  
*PhD, MIT Media Laboratory, GPA: 4.9/5*

- Research Assistant (honorary Onassis foundation fellowship recipient)
- Research Area: Conversational Robotics / Computational Semantics
- Thesis Title: Grounded Situation Models for Situated Conversational Assistants
- Main Project: “Ripley”, a conversational helping hand robot

1999 – 2000 UCLA Los Angeles, California  
*MS in Electrical Engineering, GPA: 3.97/4, degree completed in only 3 quarters*

- University fellowship recipient (funded by Rockwell)
- Major: Control (+ some signal processing courses)
- Project: “IRIS”, an automotive ranging sensor

1993 – 1999 Aristotle University Thessaloniki, Greece  
*M.Eng. in Electrical and Computer Engineering, Cum Laude, Major GPA: 92/100*

- IKY Greek state scholarship recipient
- Major: Electronics & Computers
- Thesis: “PERSEUS”, a general purpose measurement & control computer

1993 – 1998 The UK Open University Milton Keynes, UK  
*BS in Pure Mathematics, 1st class Honours (Cum Laude), GPA: 93/100*

- Courses: Pure / applied math: number theory, group theory, graph theory, logic etc.

1985 – 1991 Anatolia - American College of Thessaloniki Thessaloniki, Greece  
*Lyceum Diploma (Apolothytrion), “Aristeion” (Cum Laude) during grades 1-3*

## PROFESSIONAL EXPERIENCE

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2002 - MIT Media Lab Boston, Massachusetts  
*Research Assistant, main project: “Ripley”, a conversational helping hand robot*

- The author has designed and implemented a situation model for the robot, enabling viewpoint shifting, object permanence, uncertainty handling, bridging sensory with linguistic evidence, as well as a simple episodic memory. This implementation was just an instance of the “GSM proposal”, a large-scale theoretic proposal created by the author covering the motivation, background, generics, design methods, and future extensions of Grounded Situation Models for Situated Conversational Assistants, and also covering the relation of the proposal to major stances in AI, semantics, cognitive science, linguistics and philosophy. Has also worked in: activity recognition for surveillance, and face classification.

2001 - 2002 HAF (Hellenic Air Force) Greece  
*Airman (compulsory service), with specialty in computers and information technology*

2000 - 2001 ITI (Informatics & Telematics Institute) Thessaloniki, Greece  
*Researcher participating in the “HiScore” project*

- “HiScore” is an EU-funded project with the participation of Siemens, ITI and other companies that aims to demonstrate the capabilities of budget-priced three dimensional cameras. The author experimented with and refined several 2D/3D face recognition methods, and developed C++ modules. He also supervised two undergraduate student thesis in related topics, and organised the project team.

1999 – 2000 ANSL lab, UCLA Los Angeles, California  
*Graduate Student Researcher, Design Engineer in “TRIS” project*

- The “TRIS” project is an infrared structured light/CCD based intelligent ranging sensor. The system output is a list of cars with estimated distances and velocities. Responsible for an embedded-PC prototype, together with ATD boards, LCD

displays, infrared illuminators etc. Selected/integrated/designed/debugged the hardware, ported and streamlined the software from a laptop Windows-based PC earlier prototype to the embedded system.

1998 – 1999 CPERI/FORTH Thessaloniki, Greece

*Design Engineer in Intelligent Natural Gas Quality Meter Project*

- The Chemical Process Research Institute (CPERI) is part of the Foundation of Research and Technology – Hellas (FORTH), the second largest Greek research foundation. The project was part of the European Commission's BRITE project, and dealt with new sensors in natural gas quality metering, for automotive applications. Designed /constructed /debugged alone all of the hardware and software. Out of this project, created the more general platform "PERSEUS", based on the Motorola microcontroller MC68HC912BC32.

## PUBLICATIONS

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N. Mavridis, "Language, Situations and Sensorymotor interaction" book chapter in Speech Recognition and Synthesis (under preparation)

N. Mavridis, D. Roy, "Grounded Situation Models for Robots: Where words and percepts meet", IEEE IROS 2006

D. Roy, R. Patel, P. DeCamp, R. Kubat, M. Fleischman, B. Roy, N. Mavridis, S. Tellex, A. Salata, J. Guinness, M. Levit, P. Gorniak: "The Human Speechome Project", Annual Cognitive Science Conference 2006

N. Mavridis, D. Roy, "Grounded Situation Models for Robots: Bridging Language, Perception, and Action", AAAI-05 modular construction of human-like intelligence ws

N. Mavridis, D. Roy, "To Ask or to Sense? Planning to Integrate Speech and Sensorimotor Acts", submitted

D. Roy, K. Hsiao and N. Mavridis, "Mental Imagery for a Conversational Robot", IEEE Systems, Man & Cybernetics Part B, June 2004

K. Hsiao, N. Mavridis and D. Roy, "Coupling Perception and Simulation: Steps Towards Conversational Robotics", IEEE IROS'2003 conference

D. Roy, K. Hsiao and N. Mavridis, "Conversational Robots: Building Blocks for Grounding Word Meanings", NAACL HLT'2003 conference

S. Malasiotis et al., "A face and gesture recognition system based on an active stereo sensor", IEEE ICIP 2001 Conf. Proc.

N. Mavridis et al., "The HISCORE face recognition application: Affordable desktop face recognition based on a novel 3D camera", EURASIP ICAV3D 2001 Conf. Proc.

## MEMBERSHIPS

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Member: IEEE, AAAI, UK Math Institute (IMA), TEE (greek engineering syndicate)

## LANGUAGES

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English (TOEFL 637, Cambridge & Michigan Proficiency), German (ZDaF level), Greek (native speaker), Farsi (lower intermediate, harvard and other courses)

## SKILLS (TECHNICAL, TEACHING, LEADERSHIP ETC.)

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- TECHNICAL: Programming: C++, Matlab (extensive experience in both), Assembly Libraries/APIs: Intel IPP, OpenCV (computer vision), OpenGL, PVM etc., Experience in: pattern rec, computer vision, .embedded systems & electronics
- TEACHING: Selected / supervised students for project (5)/ undergrad thesis (3) work, guest lectures at MIT courses, and >10 lectures at universities worldwide
- LEADERSHIP: VP/Secretary/Treasurer of the MIT Hellenic Students Association, initiated and organized numerous events with up to 300 participants, established cooperation w the Onassis Foundation as well as other international groups (see for example "Three Tongues of the Muse" tri-cultural poetic banquet)
- Member of Addir Fellowship for Interfaith Dialogue, preparing large event

## HOBBIES

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History, philosophy, world religions, poetry, music (classical/jazz/world, univ. courses: history, harmony). An amateur in electronics & computers since early childhood.