

CURRICULUM VITAE (CV)

October 2009

General Information

First Name: *Farhad*

Last Name: *Bayat*

Date of birth: *5/July/ 1981*

Identification Card Number: *402*

Gender: *Male*

Marital status: *Married*

Place of birth: *Zanjan, Iran*

Father's Name: *Khalil*



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Educational Background

B.S. in Electrical Engineering Department, Zanjan University, From September 1999 up to August 2003.

Thesis: "Design and Fabrication of a CNC Driver & a DDS Unit Using FPGA".

Overall GPA: 18.08/20

Rank: *Ranked 1st among all B.S. students of Electrical Engineering Department, Zanjan University.*

MSc in Electrical Engineering Department, Iran University of Science & Technology, From September 2003 up to January 2006.

Thesis: "Design and Fabrication of a Hardware In the Loop (HIL) Simulator for 3-axes Satellite Attitude Control Testing".

Overall GPA: 19.07/20

Rank: *The Elite Student (Ranked 1st) in the Electrical Engineering Department, Iran University of Science & Technology (2006).*

Ph.D. in Electronic Engineering Department, Iran University of Science & Technology, From September 2006 up to now.

Thesis: "Optimal Control of Linear Constrained Systems Using Mixed Multi-Parametric Programming & Model Predictive Control".

Overall GPA: 18.10/20

Comprehensive Exam Mark: 19

Supervisor: Dr. A. A. Jalali, **Advisors:** Dr. M. R. J. Motlagh.

Level	Start	Graduate	Major	Average(20)	Place of Studying
Diploma	1995	1999	Mathematics	18.46	Zanjan, Iran
B. Sc	1999	2003	Electronic Engineering	18.08	Zanjan University
M. Sc	2003	Jan 2006	Electronic Engineering	19.07	Iran University of Science and Technology
Ph.D.	2006	Up to now	Electronic Engineering	Courses Ave. 18.78	Iran University of Science and Technology

Honors

- 2009** *Selected as a member of Iranian National Committee of Elite Students.*
- 2009** *A member of scientific committee of 12th electrical engineering student conference, Tabriz Azad University.*
- 2008** *A member of scientific committee of 11th electrical engineering student conference, Zanjan University.*
- 2006** *The Elite Student (Ranked 1st) in the Electrical Engineering Department, Iran University of Science & Technology.*
- 2005** *Chosen as the outstanding M.S. student in the Iran University of Science & Technology.*
- 2003** *The Elite Student (Ranked 1st) in the Electrical Engineering Department, Zanjan University.*
- 2000** *Ranked 17th among more than 100 teams in ACM Asia Programming Contest, Tehran, Sharif University.*
- 1999** *Ranked 1st among all students of Emamkhomeini pre-university center, Zanjan, Iran.*
- 1998** *Ranked 1st among all students of Shariati high school, Zanjan, Iran.*

Research Experience

Project/Research	Start	Finish	Institute/Center
6-DOF modeling and controller design for a Pan-Tilt tracking system	2010	2011	In IAS Research Center
Feasibility Study of Iranian Space Agency (ISA) Based on Analysis of Canadian Space Agency (CSA)	2005	2006	Iran Tele Communication Research Center And Iran University of Science & Technology
Design and Fabrication of a Mixed Hardware-Software Simulator for Attitude Determination & Control Testing of Spacecrafts.	2004	2005	Iran University of Science & Technology
Modeling, Simulation and Real-Time Implementation of Full 6-DOF Model of Flying Bodies (Dynamics + Kinematics + Aerodynamics).	2005	2006	In IAS Research Center
Cooperation in Designing a Nonlinear Observer Based Servo Control System	2007	2008	In IAS Research Center
Designing a Heuristic Autopilot for Designing a Virtual Simulator of Some Airplanes.	2008	2009	In IAS Research Center
Design and Fabrication of a CNC Driver in five Modes: 1- full step. 2- Half step. 3- 1/4 step. 4- 1/8 step. 5- Micro step. And a DDS Unit, Using FPGA.	2002	2003	Zanjan University
Analysis of The Ballast Control System. (ST, IR and MOTOROLA)	2002	2002	Zanjan University

Other Experience

Subject	year	Place
Teaching Linear Control Systems	2008	Zanjan University
Teaching Automatic Control Systems	2008	Zanjan University
The Referee and Chair of ISEE Conference	2008	Zanjan University

LANGUAGES:

- Persian
- English
- Turkish

ENGLISH PROFICIENCY:

Proficiency certification: from KISH Language Institute (Level I5).

Fields of Interest

- | | |
|-------------------------------------------|---------------------------------|
| 1. Optimal Control of Constrained Systems | 5. Nonlinear System Control |
| 2. Explicit Model Predictive Control | 6. Neural Network Based Control |
| 3. Robust Control | 7. Fuzzy Controller |
| 4. Aerospace System Control | 8. Robotic |

Publications/ Book Chapters and Technical Reports

Papers:

- 1- **Farhad Bayat, Tor Arne Johansen, Ali Akbar Jalali, "Flexible Piecewise Function Evaluation Methods Based on Truncated Binary Search Trees and Lattice Representation in Explicit MPC", IEEE Transactions On Control Systems Technology, DOI: [10.1109/TCST.2011.2141134](https://doi.org/10.1109/TCST.2011.2141134).**
- 2- **Farhad Bayat, Tor Arne Johansen, Ali Akbar Jalali, "Using hash tables to manage time-storage complexity in point location problem: Application to Explicit MPC", Automatica, vol. 47 (3), pp. 571-577, 2011.**
- 3- **Farhad Bayat, Ali Akbar Jalali, "On Constant Reference Tracking Problem for Fast Linear Constrained Systems", International Journal of Innovative Computing, Information and Control, accepted (2011).**
- 4- **Farhad Bayat, Hossein Bolandi, Ali Akbar Jalali, "A Heuristic Design Method for Attitude Stabilization of Magnetic Actuated Satellites", Journal of Acta Astronautica (Elsevier), 2009.**
- 5- **Farhad Bayat, Ali A. Jalali, Mohammad R. J. Motlagh, "Utilizing Multi-Parametric Programming for Optimal Control of Linear Constrained Systems", Iranian Journal of Control 2009.**
- 6- **Farhad Bayat, Ehsan Adeli, Ali Akbar Jalali, Farshad Bayat, "A Non-parametric Heuristic Algorithm for Convex and Non-Convex Data Clustering Based on Equipotential Surfaces", Journal of Expert Systems with Applications 2009.**
- 7- **Farhad Bayat, Tor Arne Johansen, Ali Akbar Jalali, "Combining Truncated Binary Search Tree and Direct Search for Flexible Piecewise Function Evaluation for Explicit MPC in Embedded Microcontrollers", IFAC World Congress, Italy, 2011, submitted (invited paper).**
- 8- **Farhad Bayat, Ali Akbar Jalali, "Constant Reference Tracking for Fast Linear Constrained Systems", IEEE Multi-Conference on Systems and Control, Japan, 2010.**
- 9- **Farhad Bayat, Tor Arne Johansen, Ali Akbar Jalali, "Managing time-storage complexity in point location problem: Application to Explicit Model Predictive Control", IEEE 18th Mediterranean Conference on Control and Automation, 2010.**

- 10- **Farhad Bayat, Ali Akbar Jalali, Hossein Bolandi, "Global Stabilizing Magnetic Controller for Satellite Attitude Detumbling and Hardware In the Loop Implementation"**, Presented in Iranian Aerospace Conference, 2006.
- 11- **Farhad Bayat, Ali Akbar Jalali, Mohammad Reza Jahed Motlagh, "Optimal Control of Linear Constrained Systems: Multi-Parametric Programming Approach"**, 17th Iranian Conf. on Electrical Engineering , ICEE 2009.
- 12- **Farhad Bayat, Ali Akbar Jalali, "Artificial Missile Guidance Using On-Line Adaptive Neural Networks"**, (In Persian) Presented in Iranian Aerospace Conference (IAC08), 2008.
- 13- **Farhad Bayat, Morteza Analoui, Ehsan Adeli, "An Efficient Algorithm for Clustering of Convex and Non-Convex Data"**, 1st Iranian Data Mining Conference, November 2007.
- 14- **Hossein Bolandi, Farhad Bayat, M. Nassirian, "Attitude Control Of Spinning Satellite Subject To Actuators Restriction Using Eigenstructure Assignment"**, Systems and Control in Aerospace and Astronautics (IEEE Conference), China 2006.
- 15- **Hossein Bolandi, Farhad Bayat, Mohammad Reza Jahed Motlagh, "Automotive Gas Turbine Regulation Using Two Multivariable Methodologies"**, 14th ICEE conference, 2006.
- 16- **Hossein Bolandi, Bahman Ghorbani, Farhad Bayat, "Energy Based Magnetic Controller Design for a Satellite Equipped with Gravity Gradient Stabilizer"**, (In Persian) Published in ISME 2006.
- 17- **Farhad Bayat, Morteza Analoui, "A New Optimal Data Clustering Algorithm Based on Potential Functions"**, (In Persian) Presented in IKT Conference, 2007.

Book / Technical Reports:

- (2005), **"Design and Fabrication of a Mixed Hardware-Software Simulator for Spacecrafts Attitude Determination & Control Testing"**, Iran University of Science & Technology.
- (2005-2006), **"Feasibility Study of Iranian Space Agency (ISA) Based on Canadian Space Agency (CSA)"**, under the supervisory of IUST and Iran Telecommunication Ministry.
- (2006), **"Modeling, Simulation and Real-Time Implementation of Full 6-DOF Model of Flying Bodies (Dynamics, Kinematics and Aerodynamics)"**, in IAS research center.
- (2008), **"Designing a Virtual Simulator for Some Airplanes: A Heuristic Autopilot"**, in IAS research center.
- (2002-2003), **"Design and Fabrication of a CNC Driver and a DDS Unit Using FPGA, in five Modes: 1- full step. 2- Half step. 3- 1/4 step. 4- 1/8 step. 5- Micro step"**, Zanjan University.
- (2002), **"Analysis of the Ballast Control System"**, Zanjan University.
- **Book Title (in Persian): "Advanced Applications and Hardware interfacing techniques in MATLAB: Xpc Target Applications, GUI and Virtual Reality"**, Ready for publication (2009).

Software Tool Expertise

Matlab,

Visual Basic,

Borland C++,

MaxPlus,

Protel,

Orcad,

Microsoft Office.

Farhad Bayat