M.Ali.Nasseri
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EDUCATION

PhD. (Dr.-Ing) Candidate in BioMedical Engineering (Surgical Robotics)   **Since Feb 2011**

Technische Universität München , Germany

www.tum.de

Thesis title: Robot-assisted microscopic manipulation for vitreo-retinal ophthalmic surgery

Advisors: Prof. Dr.-Ing. Alois Knoll & Prof. Dr. –Med Dr. Chris P. Lohmann

M.Sc. in Mechatronics Engineering   **Dec 2010**

Qazvin IAU , Qazvin , Iran (Ranked 1st Robotics & Mechatronics institute in country)

www.qiau.ac.ir

Ranked 32nd at the university entrance exam among all applicants of the Electronics & mechanics majors at Iranian universities to be accepted as student of Mechatronics (2009).
- Passed with honor (16.98/20)

B.Sc. in Electrical Engineering   **Sep 2006**

Sadjad institute of higher education , Mashhad , Iran

www.sadjad.ac.ir

TECHNICAL SKILLS

Summary: In depth practical experiences in kinematics and dynamics design and analysis of robotic systems specifically in medical applications, strong abilities in digital circuit designs and analysis as well as programing microcontrollers and interfaces.

Engineering
- o   Robotics
- o   Mechatronics systems design
- o   Design of experiments

Computer Science
- o   C/C++ (+ Realtime & Embedded Systems)
- o   MATLAB
- o   Linux
- o   Windows
- o   Image processing and vision systems
- o   Networking

Prototyping
- o   Casting
- o   Actuators, Sensors, Microcontrollers
- o   Rapid prototyping and 3d Printing
- o   Eagle / Protel

Drafting
- o   CATIA (Part Design, Assembly Design, Kinematics, Technical Drafting, Ergonomic Design)
- o   Solidworks

Medical Technology
- o   In-vivo, Ex-vivo and animal experimental setup designs
- o   FDA/CE approval
- o   Laparoscopy and Ophthalmic surgery experiences

BUSINESS EDUCATION

Entrepreneurial Qualification Program , TUM, Germany   **2012- 2013**

Organized by Business School of TUM
- ▪ Business Model Generation (Business Model Canvas)
- ▪ Customer Identification
- ▪ Entrepreneurial opportunity evaluation
- ▪ Market Screening
- ▪ Team Building
- ▪ Soft and entrepreneurial skills (Investor pitch, Presentation and Networking)

PROFESSIONAL EXPERIENCES

Medical Robotics researcher   **Feb 2011 –**
Robotics and Embedded systems Group, Technische Universität München , Germany
http://www6.in.tum.de/
Augenklinik, Klinikum Rechts der Isar, Technische Universität München , Germany
http://www.augenklinik.med.tum.de/
Design and development of robot assisted surgical robot for ophthalmology

Research and development manager   **Mar 2006 – Dec 2010**
Thunder asl – sanat co , karaj , Iran
www.raadscale.com
(One of the leader manufacturer companies in middle east in producing of digital weighting systems)

AREA OF INTERESTS

- o **Medical Robotics**
- o **Robotics and Laparoscopy**
- o **Medical Imaging**
- o **Micro Mechatronics**
- o **Multi agent systems**
- o **Behavioral Based Artificial Intelligence**
- o **Mechatronics**

RESEARCHES

- **Surgical Robotics**
  - o Micro robotic system used in Vitreo-Retinal surgery, Multidisciplinary project between TU München and Klinikum rechts der Isar, München, Germany.
- **Clinical Motion Tracking**
  - o 6DOF motion tracking of surgeon during ophthalmic surgery using Electro Magnetic Tracker (EMT) and analysis of the collected date. (Working space, Position, Orientation, Velocities and accelerations calculation)
- **Swarm intelligence & Multi agent systems**
  - o M.Sc. thesis, New approach in flocking behavior of robotics , working on a group of e-puck robots
- **Autonomous Miniature robot design**
  - o Participated in a project of designing an autonomous miniature robots called AMiR
- **Image processing in multi-agent robotics**
  - o Implementation of an image processing method to log flock movement in multi-agent robotics area
- **Solar system sun tracker**
  - o Development of a solar system sun tracker for an autonomous space robot.
- **BMS (Building management systems)**
  - o B.Sc. final project, design and production of a ready to use central alarm system used in burglar and fire warning systems based on a sensor network system with wireless transmit ion for remote monitoring.
- **Digital measurement systems**
  - o Design and produce a ready to use Digital weighting measurement interfaces, digital thermometer, and humidity meter with serial and wireless transmission abilities   .
- **Wireless communication**
  - o Digital wireless communication and data transmit ion methods using RF technology And design and production of RF middle range remote controller with variety coding systems.

PUBLICATIONS

[1]   **"Design of a Differential-Drive Wheeled Robot Controller with Pulse-Width Modulation"**
F. Arvin, K. Samsudin, M. Ali Nasseri, *IEEE Conference on Innovative Technologies in Intelligent Systems and Industrial Applications CITISIA'09, pp.143-147, Monash University, July 2009.*

[2]   **"Control of Flocking Behavior Using informed Agents"**
M. Ali Nasseri and Masoud Asadpour, *IEEE Swarm Intelligence Symposium (SIS2011), pp. 1-6, Paris, April 2011.*

[3]   **"Load-velocity Characteristics of a Stick-slip Piezo Actuator"**
M. Pak, A. Nasseri, *Proceedings der Actuator 2012. International Conference on New Actuators (ACTUATOR-12), P. 755, Bremen, Germany, June 2012.*

[4]   **"Clinical motion tracking and motion analysis during ophthalmic surgery using electromagnetic tracking system"**
M. Ali Nasseri, Emmanuel Dean-Leon, Suraj Nair, Martin Eder, Mathias Maier, C. P. Lohmann, and Alois Knoll
Proceedings of the 5th International IEEE Conference on BioMedical Engineering and Informatics (BMEI'12),pp. 1058 – 1062, Chongqing, China, October 2012

[5]   **"The 3d eyeball FTA model with needle rotation"**
Jing Wu, M. Ali Nasseri, Martin Eder, M. Azqueta Gavaldon, C. P. Lohmann and Alois Knoll
APCBEE Procedia 3rd International Conference on Biomedical Engineering and Technology - ICBET 2012. Elsevier, May 2013

[6]   **"Robot-assisted vitreoretinal surgery"**
M. Maier, M. Ali Nasseri, D. Zapp, M. Eder, K. Kobuch, C. P. Lohmann, and Alois Knoll
The Association for Research in Vision and Ophthalmology (ARVO 2013), Seattle, USA, May 2013

[7]   **"The introduction of a new robot for assistance in ophthalmic surgery"**
M. Ali Nasseri, Martin Eder, Emmanuel Dean-Leon, Suraj Nair, Daniel Zapp, Mathias Maier, C. P. Lohmann, and Alois Knoll, *35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'13). pp.5682--5685, Japan, July 2013*

[8]   **"Kinematics and dynamics analysis of a hybrid parallel-serial micromanipulator designed for biomedical applications"**
M. Ali Nasseri, Martin Eder, Daniel Eberts, Suraj Nair, Mathias Maier, Daniel Zapp, C. P. Lohmann, and Alois Knoll, *Proceedings of the International Conference on Advanced Intelligent Mechatronics (AIM2013). Pp.293-- 299, Wollongong, Australia, July 2013*

[9]   **"Embedded middleware and hard real-time based architecture for robot assisted ophthalmic surgery"**
Suraj Nair, M. Ali. Nasseri, Martin Eder, Chris P. Lohmann, and Alois Knoll, *The Hamlyn Symposium on Medical Robotics, London, UK,pp. 83 – 84, June 2013*

[10]   **"Robot for assisting Ophthalmic Surgery"**
Nasseri M. Ali, Maier M, Zapp D, Nair S, Eder M, Kobuch K, Chris P. Lohmann, and Alois Knoll, International Society for Medical Innovation and Technology(iSMIT), September 2013

PATENTS

o   **"Manipulator mit serieller und paralleler kinematik"**
Mohammadali Nasseri, Alois Knoll, Martin Eder, PCT/DE2013/100249 – Deutsches Patent und Markenamt

INTERNATIONAL COLLABORATION AND WORKSHOPS

o   **GMSI-BK21MAE Summer camp, Seoul, South Korea.**   **June 2011**
Organized by University of Tokyo and Seoul National University in the area of Mechanical Engineering focused on Medical technology.

o   **GSISH-GMSI, Tokyo, Japan.**   **March 2012**
Organized by Graduate School of Information Science in Health from TUM and University of Tokyo In Area of Medical technology, Medical Robotics and Medical Imaging.

o   **Advancements in surgical robotics, Milano, Italy**   **July 2012**
Organized by Nearlab, Bioengineering Department - Politecnico di Milano.

o   **JHU-TUM Biomedical Engineering Workshop, Baltimore, USA**   **November 2012**
Organized by Russ Taylor group, Johns Hopkins University.

o   **Safety in Robotic Surgery Workshop, Imperial College, London, USA**   **June 2013**
Organized by Hamlyn center

AWARDS

o   **TUM-GSISH Scholarship (2011 – 2014)**
For 3 years research as PhD candidate, Robot assisted vitreo-retinal surgery a multidisciplinary project between TUMünchen and Klinikum rechts der Isar

o   **AWARD for Most Innovative Idea**
2011 GMSI-BK21MAE Summer Camp Organized by University of Tokyo (Global Center of Excellence for Mechanical Systems Innovation) and Seoul National University (BK21 School of Mechanical and Aerospace Engineering)

o   **Best Poster Award**
September 2011, 3rd jubilee of Graduate School of Information Science in Health, Focused on Informatics and Biomedical Engineering.