BABAK TOUSIFAR

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EDUCATION

- **M.S. in Bioengineering** UNIVERSITY OF DENVER, DENVER, USA, NOV 2011 GPA: 3.83
  - Thesis: "Label-Free Biochemical Recognition Using MEMS Resonators for Microarray Technology"
- **B.S. in Biological Sciences** SHAHID BEHESHTI UNIVERSITY, TEHRAN, IRAN, 2005 GPA: 3.15
  - Thesis: "Characterization and Phylogenic Studies of Rapeseed Varieties"

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WORKING EXPERIENCES

Research Associate I 12/2012- 08/2012	***Illumina Inc,*** *San Diego, CA* *Advanced Research Group*
Microfluidics R&D Intern 06/2012 – 12/2012	***Advanced Liquid Logic LLC,*** *Research Triangle Park, NC* *Research-Systems Engineering*
Research Assistant 03/2009 – 05/2012	***University of Denver,*** *Denver, CO* *Department of Mechanical and Material Engineering, Nano ElectroMechanical Systems (NEMS), Physical Electronics, Biofluidics, Laboratory*
Research Assistant 01/2004 – 08/2004	***Shahid Beheshti University****, Tehran/Iran* *Department of Biological Sciences, Cytogenetic Laboratory*
Exam Team Coordinator 09/2003 – 03/2004	***Mahta Institute****, Tehran, Iran*

HONORS, AWARDS AND CERTIFICATIONS

- **Graduate Research Assistantship,** DEPARTMENT OF MECHANICAL AND MATERIAL ENGINEERING, UNIVERSITY OF DENVER, COLORADO, USA- 03/2009-11/2011
- **Certificate of Appreciation, FOR PARTICIPATING IN THE RESEARCH & DEVELOPMENT SUMMIT MEETING** SPONSORED BY COVIDIEN ENERGY-BASED DEVICES, WESTMINSTER, COLORADO, USA, 2011
- **Student Paper Competition Finalist**, JOINT CONFERENCE OF THE IEEE INTERNATIONAL FREQUENCY CONTROL SYMPOSIUM AND EUROPEAN FREQUENCY AND TIME FORUM, SAN FRANCISCO, CALIFORNIA, USA, 2011
- **Research Proposal Grant Assistant, DU UNDERGRADUATE SUMMER RESEARCH GRANT**, "*Assembly and Characterization of a Silicon-Zinc Solar Panel Prototype and its Interface with an Electric Bicycle,"* UNIVERSITY OF DENVER, COLORADO, USA, 06/15/2010-09/15/2010
- **Certificate of Attendance, NATIONAL AND CORPORATION SUSTAINABILITY**, UNIVERSITY OF DENVER, COLORADO, USA, 2009
- **Course Certificate IN MOLECULAR AND ENVIRONMENTAL BIOTECHNOLOGY**, DEPARTMENT OF ENGINEERING, UNIVERSITY OF BORAS, BORAS, SWEDEN, 2006-2007

PROFESSIONAL ASSOCIATION

- **IEEE Association since 2009**
- **Biomedical Engineering Society since 2010**
- **Association for the Advancement of Medical Instrumentation (AAMI) since 2010**

PUBLICATIONS

- **B. Tousifar**, B. Teska, N. Pardeshi, J.F. Carpenter, C.S. Lengsfeld, "PROTEIN INITIATED CAVIATION DURING NEBULIZATION LEADING TO SMALL PARTICLE AGGREGATIONS", Colorado Protein Stability Conference, 2011
- **B. Tousifar**, A. Rahafrooz, S. Pourkamali, "HYDROGEN DETECTION USING THERMALLY ACTUATED MEMS RESONATORS", IEEE, Sensors, 2011.
- **B. Tousifar**, Willy Douglas, S. Pourkamali, "DEVELOPING A FULL CYCLED SILICON CATHODE-ZINC ELECTROLYTE BASED SOLAR CELL USING COPPER RECOVERY ELECTRODES", IEEE 37th Photovoltaic Specialist Conference, 2011.
- **B. Tousifar**, M. Kvasnica, B. Purse, S. Pourkamali, "SURFACE FUNCTIONALIZATION AND MONOLAYER FORMATION ON SILICON RESONANT NANOBALLANCES", IEEE International Frequency Control Symposium 2011, **Nominated for The Best Student Paper Award**
- **B. Tousifar**, and S. Pourkamali, *"*CHARACTERIZATION OF A VERY LOW-COST SILICON CATHODE-ZINC ELECTROLYTE SOLAR CELL", IEEE 35th PVSC 2010.
- A. Rahafrooz, A. Hajjam, **B. Tousifar**, S. Pourkamali, "THERMAL ACTUATION, A SUITABLE MECHANISM FOR HIGH FREQUENCY ELECTROMECHANICAL RESONATORS" IEEE MEMS 2010

SYMPOSIUM AND SUMMIT PRESENTATIONS

- **B.Tousifar,** A.Rahafrooz, S.Pourkamali, "LOW COST SOLAR ENERGY HARVESTING USING ENGINEERED SEMICONDUCTOR MICRO PARTICLES"
    - The Graduate Symposium 2009, Nanoscale Science and Engineering Center, University of Denver, Denver, CO
    - Nano Renewable Energy Summit 2009, Denver, CO
- **B. Tousifar**, M. Kvasnica, B. Purse, S. Pourkamali,, "LABEL FREE BIOCHEMICAL ANALYSIS USING SILICON RESONANT NANOBALLANCES", Covidien R&D Annual Summit 2011, Westminster, CO

RESEARCH EXPERIENCES AND LEADERSHIPS

Nanopore DNA Sequencing
12/2012 – Present

Illumina Inc, Advanced Research Group
Nanobioelectronics Laboratory
DESIGN, FABRICATION AND TESTING INFRASTRUCTURE AND AUTOMATED PLATFORMS FOR NANOPORE DNA SEQUENCING USING ELECTROWETTING APPROACH. RUN EXPERIMENTS FOR NANOPORE SEQUENCING CHARACTERIZATION USING APERTURE PAINTING AND MANUAL TECHNIQUES.

Electrowetting on Dielectric (EWOD) Microfluidics
06/2012 – 12/2012

Advanced Liquid Logic LLC, Diagnostics and Genomics R&D
CONDUCTED RESEARCH, SYSTEMS VERIFICATION, INTEGRATION VALIDATION AND EXPERIMENT IMPLEMENTATION ON CARTRIDGE-BASED MICROFLUIDIC SYSTEMS, DEVELOPING FOR IN-VITO FERTILIZATION (IVF) IMMUNOASSAYS, NEW BORN SCREENING AND LIBRARY CONSTRUCTION FOR ILLUMINA NEXT GENERATION SEQUENCING.

Thermally Actuated Bio-MEMS Sensors 03/2010 – 5/2012 (Master Thesis)	*NEMS Lab/ Chemistry Lab University of Denver* LABEL-FREE BIOCHEMICAL SENSORS BASED ON THERMALLY ACTUATED MEMS RESONATORS MASS DETECTION
Protein Cavitation 05/2011 – 08/2011	*Biofluids Lab, University of Denver / Pharmaceutical Biotechnology Lab, University of Colorado Health Center* TRANSIENT CAVITATIONS IN IVIG GENERATED BY ULTRASONIC NEBULIZER FOR THE DRUG DELIVERY APPLICATION
Thermally Actuated MEMS Gas Sensor 09/2010 – 08/2011	*NEMS Lab, University of Denver* HYDROGEN DETECTION BASED ON THE THERMOPHYSICAL PROPERTIES OF THE TARGET GAS
Photo Electrochemical Cells 03/2009 – 09/2010	*Physical Electronics Lab, University of Denver* DEVELOPMENT AND CHARACTERIZATION OF A SILICON-ZINC PHOTO ELECTROCHEMICAL CELL
Molecular Biotechnology 01/2007 – 03/2007	*Biotechnology Lab, University of Boras* INSERTION INACTIVATION STUDIED THROUGH DNA RECOMBINANT TECHNOLOGY
Cytogenetic 01/2004-08/2004 (Bachelor Thesis)	*Cytogenetic Lab, Shahid Beheshti University* CHARACTERIZATION AND PHYLOGENIC STUDIES OF RAPESEED VARIETIES USING PSPP SOFTWARE

SKILLS AND QUALIFICATIONS

Instrumentations

Biotechnology and Molecular Biology *(Advaned Liquid Logic)*

Synergy Microplate Spectrophottometer, Mass Spectroscopy, IQ5 RT-PCR, SDS-PAGE Gel Electrophoresis, Multichannel Pipette, SKS Vortex, Grant Bio Centrifuge

NEMS and Nanobioelectronics Labrotories *(University of Denver- Illumina)*

Axopatch 200B Amplifier, Network Analyzers (Agilent E5061 and HP-8753D), Oscilloscope, Frequency Counter, Function Generator, 4-Point Probe Resistivity Measurement Unit, Thermocouple/Thermistor Data Logger, Wire Wedge Bonder (MARPET MEI1204W), SEM (JEOL 5800LV), UV Spectrophotometer, MFI (Brightwell DPA 4200), Optical Microscopy, Fluorescent Microscopy,

Clean Room Fabrication *(University of Denver-Nano3 at UCSD)*

Oxidation/Doping/Annealing Furnace, High Temperature Oven (Lindberg), Reactive Ion Etcher (Trion Sirus T2), ALD (Beneq TFS 200), Sputter (Denton Discovery 18), Lithography Process Flow, Spin Coater, Parylene Coater (PDS 2010), Mask Aligner (Karl Suss MA6),

Technical CleWin (Photolithography Mask Designing), Auto CAD, Protein Explorer, LabView (Basic), Microsoft Office2007 (Word, Excel, PowerPoint)

BOOKS AND TEACHING EXPERIENCES

- Alireza Khairkhah, **Babak Tousifar**, Amirabbas Jahanpeikar, Naghme Rajayi, "BIOLOGY TEACHER BOOK SERIES" Mahta Press Publications, Oct. 2002, ISBN: 946-94023-5-7, Tehran, Iran
- **Biology and Chemistry Courses Tutor** *Oct.2002–Jul.2004,* Mahta Institute, Tehran, Iran
  INSTRUCTED COURSES FOR HIGH SCHOOL STUDENTS TAKING THE UNIVERSITY ENTRANCE EXAM