

Kamran Shamaei, PhD www.kamran-shamaei.com kamran.shamaei@yale.edu shamaei.kamran@gmail.com		Menlo Park, CA Phone: +1 203 285 9966 US Permanent Resident
Work Experience	<ul style="list-style-type: none"> • Think Surgical, Inc. Senior Robotics Systems Engineer, Software Group, Nov. 2015 onward, Fremont, CA <ul style="list-style-type: none"> – Focus: Design of orthopedic surgical robots for knee and hip replacement – Work Domain: Robot software development, serial manipulators calibration and path planning, high-precision motion control, system integration analysis, design requirement development, electromechanical system design, high precision measurement and localization • Stanford University, Postdoctoral Associate, Robotics, with Prof. Allison Okamura, 2014-15 <ul style="list-style-type: none"> – Surgical Robotics: Trilateral teleoperated robotic system for training and automating surgical tasks – Haptics: Neurophysiology of haptic communication in human pairs, multimodal sensory integration – Medical Robotics: Magnetically driven catheters, automation of lab culture systems for cell treatments 	
Education	<ul style="list-style-type: none"> • Yale University, PhD, MS, MPhil, Robotics, with Prof. Aaron Dollar, 2009-14 <ul style="list-style-type: none"> – Medical Robotics: Knee complaint exoskeletons, lower limb orthoses and prostheses – Biomechanics: Gait biomechanics in interaction with exoskeletons, statistical modeling of human leg joints – System Design: Quasi-passive knee exoskeletons for gait augmentation – Electromechanical Design: Real-time embedded systems, controller design • ETH Zurich, MS, Micro Robotics, with Prof. Bradley Nelson, 2008-9 <ul style="list-style-type: none"> – Medical Robotics: Vision-based imaging & localizing of intraocular devices, – Micro Robotics: Intraocular surgeries by microrobots – Optics: Miniaturized fundus camera for retinal imaging • Iran University of Science and Technology, BS, Mechanical Engineering with Prof. Hamid Jahed, 2004-5 <ul style="list-style-type: none"> – Robot Manipulators: Maximum dynamic load carrying capacity of flexible link manipulators – Control: Feedback linearization control of robot manipulators – Electromechanical Design: Full design of a water-droplet 3D printer for tissue scaffold fabrication 	
Software Skills	<ul style="list-style-type: none"> • Programming: C++ (Momentics, Visual Studio, Eclipse, and Qt), MATLAB and Simulink, C, Assembly, Delphi • Operating Systems: RTOS QNX, Linux, Windows, Mac • Advanced C++ Skills: Multithreading, templates, iteration, messaging, memory management, data structures, matrix manipulation, queues, stacks, mutexes, semaphores, inheritance... • Agile Teamwork: Stash, Smart Sheet, Coverity, Jira, Git, Redmine • 3D Modeling: Solidworks, Catia, Mechanical Desktop and Autocad, Comsol (FEA) • Analytical Packages: Visual3D, Minitab (Statistics), LabView, Mathematica, Maple, PROTEUS and PSpice, OSLO Optics, Mechanical Desktop (and Autocad), LaTeX, Microsoft Office • Electronics: Altium Designer (Circuit Simulation and Design) 	
Technical Skills	<ul style="list-style-type: none"> • Embedded Systems: Freescale (C and Codewarrior), PIC (in C), Atmel (in C and Assembly) • Electronics: PCB design, strain gauges, infrared (IR), foot sensitive resistors (FSR), load cells, EMG systems, VO2 sensors, potentiometers, accelerometers, serial, bluetooth • RTOS: QNX, EtherCat, cascaded PID controllers, messaging • Calibration and System Identification: Kalman filter, optimization, EM algorithms, FARO laser systems • Control Systems: PID controller design and simulation, commutation, hall effect sensors, encoders, DC and AC motors, brushless and brushed motors, piezoelectric actuators • Automation: Hydraulics, Pneumatic, PLC (degrees from Festo Company) • Mechanical Design and Fabrication Skills: CNC mill and Lathe, 3D printer and laser cutter, Silicon and epoxy molding, waterjet and spark cutters, all methods in regular machine shops • Micro fabrication: MEMS cleanroom processes such as mask design, photolithography, dry etching, dicing, die and wire bonding, electrical readout, sensor characterization • Statistics: Minitab, regression analysis, experiment design, multivariate statistics • Gait Biomechanics: Gait lab, Visual3D, EMG, data collection and analysis, VO2 measurement • Medical/Surgical Systems: Orthotics and prosthetics, daVinci, Raven • Others: OpenHaptic Toolbox, Chai3D, Kinematics and Dynamics Library (KDL), Eigen 	

Patents	<ul style="list-style-type: none"> • Licensed: Friction-Based Orthotic Impedance Modulation Device, U.S. Application Serial No. 14/211,246. • Ophthalmoscopy Using Direct Sensing of the Flat Aerial-Image Created by an Aspheric Lens”, EP 08 016979.0. • Method and Apparatus for Solid Freeform Fabrication of Bone Tissue Engineering Scaffolds”, IR, 38,211,121.
Honors & Awards	<ul style="list-style-type: none"> • ASME Graduate Robot Design, First Place Award, Portland, Oregon, August 2013. • Fonds Marc Birkigt Fellowship, ETH Zurich, 2009. Awarded to top ranked international students of ETH Zurich • Scholarship for Foreign Students, ETH Zurich, 2007. Awarded to top ranked international students of ETH Zurich • National Elite Recognition, Iran National Organization of Elites, 2005. • Honor Student of the Year, Iran University of Science and Technology, Mechanical Engineering, 2003-4 • Khwarizmi National First Award (The most prestigious engineering academic award of Iran), 2003
Clinical Experience	<p>Providence Veterans Affairs Medical Center, Rhode Island Research Associate, Without Compensation (WOC) (Fall 2011 – Spring 2016)</p> <ul style="list-style-type: none"> • Human subject experiments: Spinal cord injury and Spina Bifida patients • Gait laboratory experiments, marker placement, data collection, EMG data collection • Preparation of experiments protocols for Institutional Review Board <p>US Army, Natick Soldier Systems Center, Biomechanics Team, Massachusetts Research Collaborator, Fall 2011- Spring 2013</p> <ul style="list-style-type: none"> • Gait laboratory experiments, marker placement, data collection, and analysis, EMG data collection • Preparation of experiments protocols for Institutional Review Board
Selected Journal Papers	<ul style="list-style-type: none"> • Biomechanical Effects of Stiffness in Parallel with the Knee Joint during Walking, IEEE TBME, 2015, Monthly Featured Story. • Design and Evaluation of a Quasi-Passive Knee Exoskeleton for Investigation of Motor Adaptation in Lower Extremity Joints, IEEE TBME, 2014, Monthly Highlights. • Design and Functional Evaluation of a Quasi-Passive Compliant Stance Control Knee–Ankle–Foot Orthosis, IEEE TNSRE, 2014. • Estimation of quasi-stiffness of the human hip in the stance phase of walking. PLoS One, 2013. • Estimation of quasi-stiffness of the human knee in the stance phase of walking. PLoS One, 2013. • Estimation of Quasi-Stiffness and Propulsive Work of the Human Ankle in the Stance Phase of Walking. PLoS One, 2013. • Single-Camera Focus-Based Localization of Intraocular Devices, IEEE TBME, 2008.
Selected Conference Papers	<ul style="list-style-type: none"> • A Paced Shared-Control Teleoperated Architecture for Supervised Automation of Multilateral Surgical Tasks, IEEE IROS 2015. • Design and Evaluation of a Trilateral Shared-Control Architecture for Teleoperated Training Robots, IEEE EMBC 2015. • Effects of Exoskeletal Stiffness in Parallel with the Knee on the Motion of the Human Body Center of Mass during Walking, IEEE ICRA 2015. • Preliminary Investigation of Effects of a Quasi-Passive Knee Exoskeleton on Gait Energetics, IEEE EMBC 2014. • A Quasi-Passive Compliant Stance Control Knee-Ankle-Foot Orthosis, IEEE ICORR 2013. • On the Mechanics of the Ankle during the Stance Phase of the Gait, IEEE EMBC 2011. • On the Mechanics of the Knee during the Stance Phase of the Gait, IEEE ICORR 2011. • Wide-Angle Localization of Intraocular Devices from Focus, IEEE IROS 2009. • Wide-Angle Intraocular Imaging and Localization, MICCAI 2009. • On Imaging and Localizing Untethered Intraocular Devices with a Stationary Camera, IEEE BIOROB 2008, Finalist for Best Conference and Best Student Paper Awards.