Curriculum Vitae

Mechanical Engineering
Member of Smart Engineering Systems and Technology (Senstech Lab)
Hacettepe University
Ankara, Turkey.
https://github.com/berkansems/

Cell Phone:**+90-538 060 5040**
E-mail: **berkansems@gmail.com**
behrang@hacettepe.edu.tr

Behrang Shamsadinlo

Personal Information

Nationality: Turkish citizen & Iranian
Gender: Male
Marital Status: Single
Date of Birth: 06th Sep 1988
Place of Birth: Iran

Education

February 2011- January 2014

Hacettepe University, Turkey
Dept. of Mechanical Engineering
M.Sc. student in Mechanics and Design Engineering, Total GPA (85-94)/100 or 3.5/4 (According to European Credit Transfer System)
Supervisor : Dr. Özgür Ünver
Thesis: "**Numerical Analysis and Manufacturing of Elastomers Utilizing Shape Deposition Manufacturing Method to Design a Rugged Robot**"

September 2006-September 2010

Islamic Azad University of Tabriz (IAUT), Iran
Dept. of Mechanical Engineering
B.Sc. student in Solids Design Engineering, Total GPA: 15/20 or 3.5/4(According to WES guide)
Supervisor : Prof. Samad Dadvandipour
Thesis: "**Using Finite Element Methods for Numerical Analyzing of the Effects of U-bolts on Center Hole Fatigue Failure of Leaf Springs**"

September 2002-June 2006

Kharazmi High School, Naghadeh, Iran
High School Diploma in Mathematics and Physics, Total GPA: 4/4

Research Interests

1. Structural Design.
2. Finite Element Analysis.
3. Numerical, Empirical and Analytical Analysis.
4. Programming (data analysis and web development)
5. Mechanics of Materials
6. Facade Structure Design

Honors

- ✓ Ranked 2425nd among 900,000 students in Nationwide University Entrance Exam. [2006]

Publications and Recent Submissions

Conference Papers

- Ali Shamsaddinlou, Akbar Tohidi, **Behrang Shamsadinlo**, "**Performance Increasing of Multiple Model Based Control**", IEEE Multi-Conference on Systems and Control, India, August 28-30, 2013. (Accepted and to be Published).

Submitted Journals

- **Behrang Shamsadinlo**, Mohammad Rauf Sheikhi, Ozgur Unver**,** Bora Yildirim "**Numerical and empirical modeling of peak deceleration and stress analysis of polyurethane elastomer under impact loading test**", journal of Polymer Testing. **21 February 2020** (Published).
- **Behrang shamsadinlo**, Ozgur unver, "**Comparison of Different Material Models for Finite Element Analysis of Polyurethane Elastomer Using Experimental and Estimated Data-sets**", Mechanics of Advanced Materials and Structures. (Submitted).

Research Experience

- ✓ Design, development, manufacturing of a drop impact test system.
- ✓ Finite element modeling and dynamic behavior analysis of viscoelastic cushion.
- ✓ Fatigue failure analysis of leaf spring of a truck
- ✓ Designing a huge commercial billboard by considering the security factors and effects of wind in analytical calculation and FEM analysis.

Some Advance Courses

Master of Science

Elasticity.....4/4
Finite Elements Methods.....3.5/4
Advance Mechanics of Materials.....3.5/4
Numerical Methods 4/4
Analytical Methods.....3.5/4

Bachelor of Science

Plasticity and Deformation.....19/20
Material Strength.....17/20
Mechanics of Composed Material.....18/20
Elements Design 20/20
Mechanism Design.....17/20

Work Experience

- ✓ **LİBART A.Ş.**
  Position: Project Manager
  Aluminun facade Engineer between 7.2014 – 09.2018
- ✓ **Freelance python developer**
  static and e_commerce website designer

Programming and Software

- ✓ Core Programing Languages: Python, Mathlab, Javascript
- ✓ 3d Modeling: Solidworks, AutoCAD, Sketchup
- ✓ frameworks: Flask, Django and Rest API
- ✓ Infra Layer: Docker
- ✓ Databases: MySQL, PostgreSQL
- ✓ Version Control: Git
- ✓ FEA Analyzing: ANSYS
- ✓ General: CSS, html5 , Bootstap, jQuery, RabbitMQ
- ✓ Facade Engineering: Logical
- ✓ Operationg System: Linux ubuntu 18.04, Windows

Languages

English: Fluent
Azerbaijani: Mother Tongue
Turkish: Fluent
Persian: Fluent

Standard Tests

IELTS General score at 12. 2018: overall 6 , taken in **12.2018**
GRE quantitative score: 760 quantitative , taken in **08.2010**

References

- **Asst. Prof. Özgür Ünver**

Dr, Department of Mechanical and Automotive Engineering, Hacettepe University, Ankara, Turkey, PhD from Carnegie Mellon University, USA.
Email: ounver@hacettepe.edu.tr
Web site: http://yunus.hacettepe.edu.tr/~ounver/
Phone: +90 530 687 01 19

- **Prof. dr. Bora Yıldırım**

Professor, Department of Mechanical and Automotive Engineering, Hacettepe University, Ankara, Turkey, PhD from Lehigh University, USA.
Email: boray@hacettepe.edu.tr
Website: http://yunus.hacettepe.edu.tr/~boray/
Phone: +90 533 366 34 77

To: Prof. Dr. Jan-Willem van de Kuilen

Motivation Letter

Here I am writing to clarify myself and my purposes of applying for a PhD position with the registration number CiTG20.36.

As I know myself, challenges are what make my life interesting, overcoming them is what makes my life meaningful! curiosity for understanding mechanical structures and material behaviors was an influential motive in my life. It was certainly the empirical rule of my life when I decided to choose Mechanical Engineering-Solid Mechanics and Design Department as my desired major in Azad University of Tabriz, Iran. The undergraduate period was a time for me to get familiar with the industry and developing capabilities of living on my own. Motivated by my growing enthusiasm for various topics in mechanical engineering. Having deep insights of my future plans, I felt I had to go to graduate studies abroad where I could pursue my life-long career goal: to explore, research, discover and teach. I started to study Mechanical Engineering at Hacettepe University which is one of the reputable universities in Turkey.

Following my dreams I tried to experience working in industry. I was employed in Libart Company which is a leading provider of aluminum facade structures in Turkey. Four years of hard work as a facade expert was a time for me to get a master in designing and applying various architectural structures for buildings. I understand that I really love researching and teaching more than working in industry. I really notice that my real desire is a university atmosphere. Teaching at university and in parallel doing research in my field of interest is my dream.

Since computer programming has become a must in the academic researches I attempted to learn Python professionally. My ultimate goal in my career is to discover new theoretical concepts as well as practical innovations in structural engineering and material science and the graduate study at *Delft University of Technology* will be a real milestone in my career to accomplish my goals.

Your attention is highly appreciated. **Behrang Shamsadinlo**

REPUBLIC OF TURKEY
HACETTEPE UNIVERSITY
Institute of Graduate Studies in Science

TRANSCRIPT OF RECORDS

January 19,2017
891524

Name and Surname: BEHRANG SHAMSADİNLO
Father's Name: ZIAD
Place and Date of Birth: NAGHADEH, 06/09/1988
Citizenship: IRAN
Student ID: N10228603

Department: Mechanical Engineering
Program: Mechanical Engineering-Master of Sciences (M.Sc.)
Status: Full Time
Admission Date: February 14,2011
Degree Obtained: Master of Sciences (M.Sc.)
Graduation Date: Jan 14,2014
Credits/ECTS (Earned): 21/119
Cumulative GPA: 3.50 (88.33)
Supervisor: Asst. Prof. Dr. ÖZGÜR ÜNVER

Academic Term: 2010-2011 SPRING		T-P-C	ECTS	Grade	P/F
MMÜ503	ANALYTICAL METHODS IN ENGINEERING	3-0-3	8	A2	P
MMÜ522	ADVANCED APPLICATIONS OF FINITE ELEMENT METHOD	3-0-3	8	A2	P
Credits/ECTS Earned:	6/16				
Academic Term: 2011-2012 FALL		**T-P-C**	**ECTS**	**Grade**	**P/F**
MMÜ508	ELASTICITY	3-0-3	8	A1	P
MMÜ546	SENSORS AND SENSING SYSTEMS	2-2-3	8	B1	P
Credits/ECTS Earned:	6/16				
Academic Term: 2011-2012 SPRING		**T-P-C**	**ECTS**	**Grade**	**P/F**
MMÜ500	SEMINAR	0-2-0	6	G	P
MMÜ576	ADVANCED MECHANICAL PROPERTIES OF MATERIALS	3-0-3	8	A2	P
Credits/ECTS Earned:	3/14				
Academic Term: 2012-2013 FALL		**T-P-C**	**ECTS**	**Grade**	**P/F**
MMÜ501	NUMERICAL METHODS	3-0-3	8	A2	P
MMÜ800	SPECIAL TOPICS	4-0-0	-	G	P
OMÜ407	STRESS ANALYSIS	3-0-3	5	B1	P
Credits/ECTS Earned:	6/13				
Academic Term: 2012-2013 SPRING		**T-P-C**	**ECTS**	**Grade**	**P/F**
MMÜ800	SPECIAL TOPICS	4-0-0	-	G	P
Credits/ECTS Earned:	0/0				
Academic Term: 2013-2014 FALL		**T-P-C**	**ECTS**	**Grade**	**P/F**
MMU600	SPECIAL SUBJECTS	4-0-0	60	G	P
The MMU600 was taken instead of MMÜ800.					
Credits/ECTS Earned:	0/60				

Thesis Work Starting Date: Mar 16,2012 **Thesis Defense:** Dec 16,2013

Thesis Title: DESIGNING AND MANUFACTURING OF A RUGGED ROBOT USING SHAPE DEPOSITION MANUFACTURING TECHNIQUE

Ercivan CAN
Institute Secretary

حسن اکبری سردرودیان
مترجم رسمی زبان انگلیسی دادگستری جمهوری اسلامی ایران
عضو جامعه مترجمان رسمی ایران -بشمارهٔ ۶/۲۹۱۳
ارومیه-خیابان خیام شمالی-پلاک ۱۴-دارالترجمهٔ رسمی امید
H.Akbari Sadroudian/Tel. 2232768
Officially Licensed Translator to the Judiciary - No. 14/ Dr. Hamadanch's Building, N. Khayyam/ URMIA

HASSAN AKBARI SADROUDIAN OFFICIALLY LICENSED TRANSLATOR TO THE JUDICIARY 6/2912 - URMIA

شماره ۱۵۲۰۲۹

شماره دفتر مترجم

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قوهٔ قضائیه _ اداره مترجمین رسمی

Islamic Azad University / Emblem.
Tabriz Branch
Ed. Deputyship
Form No. 3

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No. : 02-17-2,1772/25
Date : Mar.13, 2010
Photo. of the holder printed.

This is to certify that :

MR. BEHRANG SHAMSADINLO

holder of ID. Card No. 7408 , son of Zia, issued in Naghadeh , born on Sept.06, 1988, bonafide student in **Bachelor's Academic Degree Program** in the Field of **Mechanical Engineering / Solids Design ,** entered in **2006** , holding a **Bachelor's Degree,** was admitted by national exams, with grade **6176 ,** Rank **117 ,** and had been occupied with the study by end of sem. **1 / 2009-2010 ,** having no problem , concerning the Plant , and military service. he has passed the following subjects at this university branch based on the titles approved by the Planning Supreme Council.

The Student's Academic Details of Grades :

Sem. 1/ 2006-07

Subject	Credits theo.	Credits pract.	Grade
Gen. chem.	3	-	14
Foreign lang.-1	3	-	13
Living rules (Applied ethics)	2	-	19
Eng. lang.	2	-	17
Pre-university Math.	2	-	17
Eng. graphics-1	1	1	16.5
Physics-1	3	-	11
Gen. math.-1	3	-	10.5

17.01.89

Sem. 2/ 2006-07

Subject	Credits theo.	Credits pract.	Grade
Physics-2	3	-	13.5
Iranian Islamic Revolution	2	-	18.5
Population & family planning	2	-	16
Diff. equations	3	-	10
Statistics	3	-	10
Eng. graphics-2	1	1	10.5
Welding & foiling workshop	-	1	16
Physical ed.-1 , pract.	-	1	15.25

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Sem. 1/ 2007-08

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مترجم رسمی زبان انگلیسی دادگستری جمهوری اسلامی ایران
عضو جامعه مترجمان رسمی ایران -بشمارهٔ ۶/۲۹۱۳
ارومیه-خیابان خیام شمالی-پلاک ۱۴-دارالترجمهٔ رسمی امید
H.Akbari Sadroudian/Tel. 2232768
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شماره ۱۵۲۰۲۷

شماره دفتر مترجم

Subject	Credits theo.	Credits pract.	Grade
Dynamics	4	-	15.5
Materials sciences	3	-	19
Material strengh-1	3	-	17
Gen. math.-2	3	-	16
Thermodynamics-1	3	-	16
Holy Kuran subjective interpretation	2	-	17.5
Physical ed.-2	-	1	18.5
Acquaintance with holy Kuran	1	-	16

Sem. 2/ 2007-08

Subject	Credits theo.	Credits pract.	Grade
Components design-1	3	-	20
Bases of electrical eng.-1	3	-	19
Fluids mechanics-1	3	-	19
Computer programming	3	-	16
Eng. math.	3	-	10.75
Islamic thought (Origin & Reserction)	2	-	15
Imam's testaments	1	-	17
Physics lab.-1	-	1	17
Tools machine & tools manufact. workshop	-	1	15.5

Sem. 1/ 2007-08

Subject	Credits theo.	Credits pract.	Grade
Methods of production & workshop	3	-	15
Fluids mechanics-2	3	-	13
Numerical computations	2	-	16.5
Components design-2	3	-	10.5
Materials strengh-2	2	-	15.5
Machine dynamics	3	-	10
Islamic thought-2 (Imamate & prophacy)	2	-	13
Physics lab.-2	-	1	17
Automechanics workshop	-	1	17

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Sem. 2/ 2008-09

Subject	Credits theo.	Credits pract.	Grade
Pract. plasticity & metals deformation	3	-	20
Mechanisms design	3	-	17
Thermodynamics-2	3	-	16
Bases of Elect. eng.-2	3	-	13.5

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عضو جامعه مترجمان رسمی ایران -بشمارهٔ ۶/۲۹۱۳
ارومیه-خیابان خیام شمالی-پلاک ۱۴-دارالترجمهٔ رسمی امید
H.Akbari Sadroudian/Tel. 2232768
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قوهٔ قضائیه _ اداره مترجمین رسمی

شماره ۱۵۲۰۲۶

شماره دفتر مترجم

Specialized eng. lang.	2	-	19
Mechanical oscillations	3	-	12
Materials strength lab.	-	1	17.5
Bases of Elect. eng. lab.	-	1	16
Termodynamics lab.	-	1	13

Sem. 1/ 2009-10

Subject	Credits theo.	Credits pract.	Grade
Automatic control	3	-	14.75
Persian	3	-	13
Industrial management & economics	2	-	18.5
Dynamics & oscillations lab.	-	1	18.5

- Chairman of Exams. Office / I.A.U. , Tabriz Branch : Signed.
- Director of Ed. / I.A.U., Tabriz Branch : Signed & Sealed.
- Ed. Deputy : Signed.
- Superintendant of Appraisal & Supervision / I.A.U. : Signed & Sealed - May.07, 2010
- Ed. Services / I.A.U. , Tabriz Branch : Signed & Sealed.

****

True translation certified - May.22, 2010

Urmia Justice Administration
دادگستری ارومیه
۰۴۱۱-۶۴۷۷۶۵

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HASSAN AKBARI SARDROUDIAN
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حسن اکبری سردرودیان
مترجم رسمی زبان انگلیسی
قوه قضائیه
۶/۲۹۱۲
ارومیه

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Centre Number	TR002	Date	01/DEC/2018	Candidate Number	013970

Candidate Details

Family Name	SHAMSADINLO
First Name	BEHRANG
Candidate ID	N95871651

Date of Birth	06/09/1988	Sex (M/F)	M	Scheme Code	Private Candidate
Country or Region of Origin					
Country of Nationality	IRAN, ISLAMIC REPUBLIC OF				
First Language	AZERI				

Test Results

Listening	Reading	Writing	Speaking	Overall Band Score	CEFR Level
6.5	5.0	5.5	6.0	6.0	B2

Administrator Comments

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ABSTRACT

NUMERICAL ANALYSIS AND MANUFACTURING OF ELASTOMERS UTILIZING SHAPE DEPOSITION MANUFACTURING METHOD TO DESIGN A RUGGED ROBOT

Behrang SHAMSADINLO

Master of Science, Department of Mechanical Engineering

Supervisor: Dr. Özgür ÜNVER

December, 2013

The robotic and its evolution in recent years is one of the most transformative inventions of man. Over years innovations have made robots faster, more intelligent and smart. Modern robots utilize increasing numbers of cameras, sensors, actuators and etc. Some of these mechatronic devices are sensitive to applied acceleration and/or stress. More electronic devices are expected to provide more functionality whilst remaining safe when using in harsh environment. In this thesis, the ultimate goal is to design a rugged robot which provides maximum level of protection for sensitive components. This performance would be satisfied by embedding the electronic devices into a host objects made by rubber-like materials; which are widely used in decreasing intensity of impact loads or acceleration. Polyurethane elastomers are viscoelastic rubber-like materials with very wide shore hardness which provide different dynamic properties. These materials are selected due to their superior properties such as; viscoelastic behavior under high strain rates and elastic behavior under low strain-rates.

Embedding of the components in the host material requires special manufacturing method to manufacture the robot in 3-D and monolithic way. We used a special rapid prototyping method named Shape Deposition Manufacturing (SDM) to manufacture the robot.

The main objective of this thesis is to design a rugged robot by analyzing viscoelastic and hyperelastic behaviors of the material. Numerical methods such as Finite Element Method (FEM) and Neural network are implemented to analyze the behavior of material under different loading conditions. FEM requires data-set results of materials from multiple test set-ups (uniaxial tension, pure shear, biaxial). Shear and biaxial tests require special mechanical devices that are scarce and expensive, therefore; an alternative Valanis-Landen method was used instead of performing these tests.

To analyze the realistic impact, a test device is designed to test the specimens with different area and thickness under different testing conditions of drop height and drop mass. Finally, the best design parameters are selected to ensure protection of the rugged robot.

Keywords: Polyurethane Elastomer, Finite Element Method, Hyperelastic and Viscoelastic Analysis, Shape Deposition Manufacturing.