

PERSONAL INFORMATION



Curriculum Vitae

Faezeh Rahimi

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Sex Female | Date of birth 17/09/1991 | Nationality Iranian

Faezeh Rahimi

Hobbies

Yoga, Pilates, Jogging

Drawing, Photography

Podcast Listening, Reading

Research Interests

RF and Microwave Devices Design, Antenna Design, and Applied Electromagnetics.

Education

2014 – 2017
(5 terms)

• MSc. in Electrical Engineering -Telecommunications

K. N. Toosi University of Technology, Tehran, Iran

Thesis title: Antenna Array Design and Fabrication and Beamforming for Hyperthermia Applications (Breast Cancer Treatment)

Cumulative GPA: 18.59/20 (4/4) (ranked) Thesis Score: 19/20

2010 -2014
(8 terms)

• B.Sc. in Electrical Engineering

Dr. Shariaty Technical Collage, Tehran, Iran

Cumulative GPA: 17.13/20 (3.62/4) Thesis Score: 20/20

Awards & Honors

2017

• Best Paper in the 5th Iranian Conference on Engineering Electromagnetics.

2016

• Best Paper in the 4th Iranian Conference on Engineering Electromagnetics.

2013

• Best Bachelor Project in University.

2014

• Scored within the Top 2% of students in the Iran Nationwide Universities for the MSc Graduate Engineering Entrance Exam out of More than 30000 Electrical Engineering Students.

Publications

July 2020

• **Faeze Rahimi**, Somayyeh Chamaani, "Repetitive Time-reversal Method to Reduce Input Power of a Wearable Hyperthermia Applicator for Breast Cancer Treatment", Microwave and Optical Technology Letters. ([DOI:10.1002/mop.32518](https://doi.org/10.1002/mop.32518))

May 2017

• **Faeze Rahimi**, Somayyeh Chamaani, "The 4 and 7 Elements Array Antenna Design with the Time Reversal Technique for Hyperthermia Therapy of the Breast Cancer", 25th Iranian Conference on Electrical Engineering, Iran, K.N. Toosi University of Technology.

April 2017

• **Faeze Rahimi**, Somayyeh Chamaani, "A wearable Antenna Array for Breast Hyperthermia Treatment with Time-Reversal Method", The Fifth Iranian Conference on Engineering Electromagnetics (ICEEM). Shahid Rajaei Teacher Training University, Tehran, Iran.

April 2016

• **Faeze Rahimi**, Somayyeh Chamaani, "Using the Theory of Maximum Gain in the Antenna Array Design for Hyperthermia Cancer Therapy", The Fourth Iranian Conference on Engineering Electromagnetics (ICEEM), Iran, Imam Khomeini Naval University of Noshahr.

Projects Relevant to the Master's Thesis

2018-2019

Designing a wearable hyperthermia applicator by time-reversal method using microstrip patch antenna array loaded on-body in COMSOL software and investigating accurate SAR and thermal results in time-lapse

2017-2018

Implementing a 4-element antenna hyperthermia applicator loaded on a chicken breast and accomplishing the practical tests

2015-2017

• Designing and simulating an 11- element microstrip patch antenna array loaded on-body (human breast and chicken breast) in CST Microwave Studio 2015 and 2018.

• Applying the time-reversal method to the designed antenna array in order to design a wearable hyperthermia applicator for superficial, intermediate, and deep-seated tumors with lower input power and number of antenna elements.

• Decreasing the number of array elements to 4 and 7 elements by applying the time-reversal-based algorithm (selecting the most effective antennas for different tumors)

• Wilkinson Power divider 1 to 8, 4-watt Power amplifier (using FP31QF)

Top Projects & Research Experiences

- 2015-2016
- **Designing various types of antennas in CST software such as:**
 - Microstrip rectangular patch antenna in TM01 and TM10 modes, co and cross patterns, current distribution of radiator edge
 - Broadband, dual-band, circular polarized, pyramidal horn, reflector, slot array
 - Feeding techniques of microstrip antenna (coaxial and inset fed)
 - Techniques to increase the bandwidth of rectangular microstrip patch antenna such as C-prob, meandered probe and L-prob, parasitic patch and U-Slot, thick substrates, and etc.
 - Circularly polarized microstrip antenna by truncated rectangular
 - Broadband circularly polarized microstrip antenna by truncated rectangular by C-prob compensation
 - A wideband dual-polarized directional antenna
 - A linear microstrip phased array antenna in 5.8 GHz with its series phase shifter network
 - Slot Array Antenna (Resonant and non-resonant) (A 7-element resonant waveguide slot array with triangular current distribution, and A 15-element non-resonant waveguide slot array with triangular current distribution with a specified beam angle)
- 2016
- **Designing various types of phased array antennas in CST software and MATLAB such as:**
 - Dipole array antenna on cylinder surface based on maximum gain theory in 1 GHz
 - 11-element Dolph-Chebyshev array with 30dB SLR and specified element distances
 - Taylor, Bayliss and Woodward patterns
 - Infinite array of patch antennas fed by a coaxial probe
- 2016
- **Designing other active microwave circuits such as:**
 - A power amplifier with ADS
 - A low noise amplifier with ADS
 - A voltage variable attenuator with ADS
 - A voltage control oscillator with ADS
 - A single diode mixer designed by 180 degrees hybrid with MATLAB and ADS
- 2016
- **Designing and simulating microwave devices with CST and HFSS such as:**
 - Coaxial line, microstrip line, coplanar waveguide (CPW), coplanar waveguide with the ground (CPWG), and slot line (fine line)
 - Stripline to microstrip transition
 - CPW to slot line transition
 - A multi-section Coupled-Line-Couplers with a binomial (maximally flat) response
 - Multi-section coupled line filters with a specified ripple or maximally flat
- 2010-2014
- **Bachelor's course projects:**
 - Design and implementation of a transistor three stage amplifier
 - Implementation of a robotic router
 - Design of a Computer CPU in MAXplus software
 - Simulation and construction of scientific calculator using AVR microcontroller in codevision and proteus

Skills

Language Skills

- Nov 2019
- Persian (Native)
 - English (TOEFL iBT score: 92/120 (Reading: 23, Listening: 25, Speaking: 24, Writing: 20))
 - Arabic (Fair in Reading and Listening)

Computer Skills

- Programming Skills: Assembly, C/C++/C#, MATLAB, HTML
- Telecommunications Engineering Software: CST, ADS, HFSS
- Electrical Engineering Software: Proteus, MAX Plus, PSpice, Codevision, BASCOM-AVR, Altium Designer
- Other Software: COMSOL Multi-physics