

# Onur Ferhat

FULL-STACK DEVELOPER · DATA SCIENTIST

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## Education

### Autonomous University of Barcelona

Barcelona, Spain

PHD IN COMPUTER VISION

2011–(2016)

- Supervised by: Dr. Fernando Vilariño.
- Working on **natural light (webcam-based) eye tracking algorithms**.
- Making the tracker more accurate, robust and easier to use.
- Collaborating with Dan Norton for **interdisciplinary projects**.
- Using computer vision and eye tracking to create artistic user interactions.
- Presented joint project Memory Fields in **Sonar +D 2015** and The Volpelleres Living Lab.

### Autonomous University of Barcelona

Barcelona, Spain

MSC IN COMPUTER VISION AND ARTIFICIAL INTELLIGENCE

2011–2012

- Courses on many areas of computer vision.
- Hands-on experience in fields including **image processing**, **machine learning** and **artificial intelligence**.

### Bogazici University

Istanbul, Turkey

BSC IN COMPUTER ENGINEERING

2004–2009

- One of the top computer engineering degrees (top **0.03 percentile** in university entrance exams).
- Courses on **robotics**, **artificial intelligence** (MSc level), **pattern recognition** (MSc level) in the senior year.
- Final project on **reinforcement learning** for Aibo robots (simulation environment).
- Also studied: biomedical engineering, Spanish (3 years), linguistics, advanced English, environmental science.

## Honors & Scholarships

### HONORS

- |      |  |                                    |
|------|--|------------------------------------|
| 2014 | <b>Google Research Award</b> , Awarded to my supervisor Dr. Fernando Vilariño for his proposal titled “Linking physical documents with digital information”. | Autonomous University of Barcelona |
| 2009 | <b>Honors Degree</b> , Graduated with a GPA of 3.49 and awarded an honors degree.  | Bogazici University                |
| 2004 | <b>Nationwide Success</b> , <b>141<sup>st</sup></b> among ~1.5 million students.   | University Entrance Exams (OSS)    |
| 2001 | <b>Nationwide Success</b> , <b>5<sup>th</sup></b> among ~600 thousand students.  | High School Entrance Exams (LGS)   |

### SCHOLARSHIPS

- |           |   |                                    |
|-----------|---|------------------------------------|
| 2011      | <b>Postgraduate Scholarship</b> , For 4 years, including tuition for master’s degree. | Autonomous University of Barcelona |
| 1999–2009 | <b>General Scholarship</b> , Continuous TEV scholarship for 10 years.                 | Turkish Education Foundation (TEV) |

## Experience

### Banksoft - Payment Systems Solutions

Istanbul, Turkey

SOFTWARE DEVELOPER

2009–2011

- Worked on personalization (preparation for customers) of **EMV-compliant chip cards** for major Turkish and international banks.
- Completed training on programming **embedded applications** for EMV chip cards.
- Actively participated in the project revolutionizing the company’s legacy systems.
- *Defined tasks:*
  - Managing customer data and **security data**.
  - Preparing TLV-format (tag-length-value) file outputs for **mass-embossing of cards**.
  - Reflecting the required changes for new card products (changed chips, new campaigns, etc.) to the code.
  - Installing updated components on production servers of banks.
- *Additional accomplishments:*
  - Developed a program for internal use of colleagues while development.
  - Developed an editor for parsing TLV format personalization files. Implemented functionalities for **editing**, **automated verification** of security data, parsing of special tag values, robust error detection, etc.

## Imovasyon

Istanbul, Turkey

FULL-STACK DEVELOPER

2009

- Worked in the development of startup's **QR code** management system (cepkod.com).
- Connected the system with Microsoft Tag, Facebook, SMS sending APIs.
- Developed an **API** to allow simultaneous creation and management of QR codes and Microsoft Tags.
- Developed a **URL shortener** system to compress data encoded in the QR codes.

## Inveon

Istanbul, Turkey

FULL-STACK DEVELOPER

2008–2009

- Worked on **C#** web projects for internal use of many large Turkish companies.
- Projects for a **variety of sectors** (pharmaceutics, insurance, security, etc.).
- Learned latest web technologies (jQuery, AJAX, etc.) and practiced **agile development** methodology.

## Teaching Experience

2014–2015 **Multimedia Systems**

Autonomous University of Barcelona

2014–2015 **Robotics, Language and Planning**

Autonomous University of Barcelona

2011–2012 **Programming Laboratory**

Autonomous University of Barcelona

## Open Source Contributions

**Opengazer:** My fork of this project on GitHub ([github.com/tiendan/OpenGazer](https://github.com/tiendan/OpenGazer)) remains the most actively developed branch. We revamped the code by removing dependencies to legacy libraries, switching to Qt for GUI and modularizing the eye tracker components.

## Skills & Courses

**Programming** Python, C/C++/C#, Matlab, SQL

**Web** Django, JavaScript, Bootstrap, HTML, CSS, Backbone.js, jQuery, AngularJS

**Languages** Turkish, English, Spanish, Catalan

**Hands-on Deep Learning course** (January 2016)

Barcelona

- Internal workshop on deep learning with MatConvNet toolbox (in Computer Vision Center).

**Machine Learning courses** (2015–2016)

Online

- Several online courses (from Coursera) related to machine learning to refresh my knowledge and learn tools used in the industry.

## Publications

### JOURNAL ARTICLES

**Onur Ferhat**, Fernando Vilariño (2016). **Low Cost Eye Tracking: Methods and General Applications**. Journal of Computational Intelligence and Neuroscience.

**Onur Ferhat**, Fernando Vilariño, F. Javier Sanchez. (2014). **A Cheap Portable Eye-Tracker Solution for Common Setups**. Journal of Eye Movement Research, 7(3), 1–10.

### CONFERENCE PROCEEDINGS

**Onur Ferhat**, Arcadi Llanza, Fernando Vilariño. (2015). **Gaze Interaction for Multi-Display Systems using Natural Light Eye-Tracker**. In 2nd International Workshop on Solutions for Automatic Gaze Data Analysis.

Dan Norton, Fernando Vilariño, **Onur Ferhat**. (2015). **Creative Engagement in Digital Collections**. In Internet Librarian International.

Dan Norton, Fernando Vilariño, **Onur Ferhat**. (2015). **Memory Fields: DJs in the Library**. In 21st International Symposium on Electronic Art (accepted).

**Onur Ferhat**, Arcadi Llanza, Fernando Vilariño. (2015). **A Feature-Based Gaze Estimation Algorithm for Natural Light Scenarios**. In 7th Iberian Conference on Pattern Recognition and Image Analysis (Vol. 9117, pp. 569–576). Springer International Publishing.

**Onur Ferhat**, Fernando Vilariño. (2013). **A Cheap Portable Eye-Tracker Solution for Common Setups**. In 17th European Conference on Eye Movements.

### MASTER'S THESIS

**Onur Ferhat**. (2012). **Eye-Tracking with Webcam-Based Setups: Implementation of a Real-Time System and an Analysis of Factors Affecting Performance**. (Fernando Vilariño, Ed.) (Vol. 172).