Hakan Bulu, Ph.D.
Senior Full-Stack Software Engineer, Researcher

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Overview

   I am a Senior Full-stack Software Engineer with a variety of knowledge in many different back-end and front-end technologies. I have many experiences on developing final product starting from an idea, responsive website design, cross platform standalone application, database design. I always would like to develop simple and modular applications for efficiency and reliability. I am always passionate about learning new technologies.

Experiences

➢ **IBM**
Software Engineer Researcher

Feb 2016 – Present

- IBM Watson Healthy Imaging Solutions
- *As a Software Engineer*: I have been developing a Web-Based Medical Image Annotation Tool to provide ground truth data for our Deep Learning and Machine Learning algorithms.
  - 85% Front-End, 15% Back-End
  - Java, RESTful Web Services, JavaScript, CSS, HTML, HTML5 Canvas, JQuery, WepSphere Liberty Application Server, JSON, Apache Subversion (SVN)
- *As a Researcher*: I have been developing algorithms for classification of digital signals.
  - Digital Signal Processing, Classification, Deep Learning, Machine Learning, Feature Extraction
  - Python, C#
- *Accomplishment(s) by now*: 3 Patents and 2 Conference Publications

➢ **Stanford University**
Software Engineer and Postdoctoral Scholar

Oct 2013 – Jan 2016

- Integrative Biomedical Imaging Informatics Laboratory (IBIIS)
- *As a Software Engineer*: I have developed two JAVA APIs for a Web-Based Medical Image Annotation Application which is called as ePad.
  - Back-End
  - Java, Object Oriented Developing (OOD), RESTful, GitHub, eXist (NoSQL Document Database), XML, XSD, XPath, XQuery, XSLT
- *As a Researcher*: My research project was extracting clinical features and new BI-RADS terms from free-text mammography reports.
  - Natural Language Processing (NLP)
  - *Accomplishment(s)*: 1 Journal Publication

➢ **Dokuz Eylul University, Turkey**
Software Engineer and System Administrator

Dec 2003 – Sep 2013

- I was responsible for maintaining and adding new features to Student Information System, Employee Information System, Financial Accounting Information System, Website of the Graduate School of Natural and Applied Sciences Department.
- Visual Basic, C#, ASP.Net, Database Management, Active Directory, Internet Information System (IIS), MS SQL Server, SAP Crystal Reports

➢ **Others**

- In addition to my above experiences, I have developed many freelance applications as well. Some of them are;
  - Web-based board sharing and note taking application (2017).
  - Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems for Izmir Academy Inc., Izmir, Turkey (2010).

- o Customer and service record management system for Er-Gocen Auto Service and Sincar Auto Service, Izmir, Turkey (2009).
  - o Customer and portfolio management system for Metin Real Estate Agency, Izmir, Turkey (2005).
  - o Patients and exams management system for small and mid size clinics (2003).
- Complete application development cycle.
- C#, Java, C++, JavaScript, CSS, HTML, JSON, OpenCV, Facebook Developer API, Google Map API, Google Speech API, Google Firebase, SAP Crystal Reports, JQuery, Fabric.js, MS Access, My SQL, MS SQL, Model-View-Controller (MVC), WSDL, SOAP, RESTful

Education

➢ **Doctor of Philosophy (Ph.D.), Computer Engineering, Dokuz Eylul University, Turkey**
- *Subject*: Ontology-Based Medical Image Annotation and Retrieval
- I have developed a Mammography Annotation and Case-based Retrieval Tool by using QT cross-platforms application and UI framework.
- C++, QT, Image Processing, Semantic Web, Ontology, Knowledge Representation, SWRL, SQWRL, DICOM, Inference, OWL, RDF
- *Accomplishment(s)*: 2 Journal and 3 Conference Publications

➢ **Master of Science (M.Sc.), Computer Engineering, Dokuz Eylul University, Turkey**
- *Subject*: of 3D Segmentation Algorithms for Medical Imaging
- I have developed an application to compare and display results of different 3D Segmentation algorithms for Magnetic Resonance Imaging (MRI) and Computed/Computer Tomography (CT) Images.
- C#, The Visualization Toolkit (VTK), 3D Visualization, 3D Segmentation
- *Accomplishment(s)*: 2 Conference Publications

➢ **Bachelor of Science (B.Sc.), Computer Engineering, Dokuz Eylul University, Turkey**
- Pre-Master
- I have enrolled in major Computer Engineering undergraduate classes before starting my master education.

➢ **Bachelor of Science (B.Sc.), Ege University, Turkey**

Fellowships

- Medical School Tuition Fellowship. Supported by Stanford University Department of Radiology. Jul 2011 – Jan 2012
- International Research Fellowship (Code: 2214). Supported by The Scientific and Technological Research Council of Turkey (TUBITAK). Jul 2011 – Jan 2012
- National Ph.D. Fellowship (Code: 2221). Supported by The Scientific and Technological Research Council of Turkey (TUBITAK). Feb 2007 – Aug 2008

Patents

- 3D Web-Based Annotation (ID: 92736162, Filed on 11/08/2017)
- Automatic Generation of UI from Annotation Templates (ID: 92736181, Filed on 08/31/2017)
- Rapid Cross-Validated Ground Truth Annotation of Large Image Datasets For Image Analytics (ID: 92731682, Filed on 07/19/2017)