

# Berk Cetinsaya

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## EDUCATION

- 
- University of Arkansas at Little Rock (UALR)** Jan. 2018 – Present
- Pursuing Philosophy of Doctorate in Computer Science.
- University of Arkansas at Little Rock (UALR)** Aug. 2016 – Aug. 2018
- Have a Master of Science in Computer Science.
- Bahcesehir University, Turkey (BAU)** Sept. 2012 – June 2016
- Computer Engineering Bachelor's Degree by 50% merit scholarship.
  - Was the 3<sup>rd</sup> highest ranked student in Department of Computer Engineering Class of 2016.
  - 2013 – 2016 Honor Roll Student.

## EMPLOYMENT

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- UALR Department of Computer Science** Aug. 2016 – Present
- 2019 – Present:
    - Working as a graduate assistant at Emerging Analytics Center (EAC) at UALR.
    - Lecturer of computer systems and assembly language class.
  - 2016 – 2019: Worked as a graduate research assistant on Virtual Surgical Simulations.
    - **Virtual Endoluminal Surgical Simulation (VESS)**
      - Developed a preliminary Endoscopic Submucosal Dissection (ESD) surgery simulator for colorectal cancer by using Unity Game Engine.
      - Created an interface to access the haptic device to get haptic feedback in real-time.
    - **Object Detection and Obstacle Avoidance RC Car**
      - Developed an automated RC car to recognize objects with Raspberry Pi.
      - Tensorflow was used for image recognition, and ultrasonic sensors for obstacle avoidance.
      - Alternatively, a python-based web framework was developed to control the RC car manually.
- BAU Department of Computer Engineering** Sept. 2015 – June 2016
- Undergraduate Teaching Assistant of:
    - Introduction to C Programming
    - Introduction to C++ Programming
    - Object Oriented C++ Programming
    - Data Structure and Algorithms in C++
    - Advanced Programming (JAVA)
    - Digital System Design
    - Embedded Systems Programming
    - Introduction to Computer Networks
- Intel** Feb. 2015 – June 2016
- Project Student at Intel Future Labs in BAU, worked on IoT and Wearable Technologies.
    - **Environmental Monitoring and Cloud Analytics** Feb. 2015
      - Created a device which detects and sends temperature, pressure, light and humidity data to Intel Cloud Database by using Intel Edison and SparkFun Weather Shield.
    - **IoT Door and Light Application through Wi-Fi** Sept. 2015
      - Used a web interface to control all pins on Raspberry Pi.
      - Lights and an electronic door are separately connected to two output pins by two relays. When clicked on the pin button on the webpage, it sends a signal to relay and completes the circuit then opens lights or door.
      - An electronic door can be opened by using RFID card reader. Time, card id and date can be logged to an SD card when people come in or go out.
    - **Gyronome (Capstone Project)** Aug. 2015
      - Made a controller that draws its movements on screen by a Java Processing model with Arduino Uno and AFL450 gyro sensor.
      - Designed an advance controller by using Arduino 101 and 8 gyro sensors for playing browser-based games with body movements.
      - Arduino defined as a joystick and gyros can be attached to all main body parts. This project can be synced with Oculus Rift and Unity.
    - **KepceMat** Oct. 2015
      - Created a toy stuffing machine for an ad agency which uses HF05 Bluetooth module for being played by any android device by using devices' gravity sensor without any button.
      - HTC, EBay and Vodafone used this device in their marketing events.
- Sparkgo** Sept. 2014 – Jan 2016
- Was responsible for the embedded systems at Sparkgo, a technology startup in BAU.
- SFS Consulting Computing Industry and Foreign Trade Co.** June 2014 – Sept. 2015
- Had been eligible to have internship and then worked as a Junior Test Consultant at SFS, the leading insurance software company in Turkey.
  - Designed test scenarios for insurance system programs and reported and fixed bugs.

## TECHNICAL COMPETENCIES

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- Programming Languages: C, C++, C#, Java, Python, SQL, JavaScript, HTML, CSS, PHP, Verilog, Bash, MIPS
  - Tools and Technologies: Tensorflow, MATLAB, 3DS MAX, ZBrush, p5.js, Cisco IOS, Java Processing, Git, LaTeX, Arduino, PlatformIO, Raspberry Pi, Unity, WebGL, OpenGL
  - OS: Linux, Windows, MacOS
  - Knowledge: Computer Graphics, Embedded System Programming, IoT, Artificial Intelligence, Machine Learning

## PUBLICATIONS AND PRESENTATIONS

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- D. Demirel, **B. Cetinsaya**, T. Halic, S. Kockara, D. Reiners, S. Ahmadi, 2019, "An iterative Approach for Partition-based Optimization Model for Generative Anatomy Modeling Language", MCBIOS. (Conference Paper)
- D. Demirel, **B. Cetinsaya**, T. Halic, S. Kockara, S. Ahmadi, 2019, "Partition-based Optimization Model for Generative Anatomy Modeling Language (POM-GAML)". BMC bioinformatics, 20(2), p. 105. (Journal paper)
- S. Hegde, M. Gromski, T. Halic, **B. Cetinsaya**, M. Turkseven, Z. Xia, M. Sawhney, D. Jones, S. De, C. Jackson, (2019). Endoscopic submucosal dissection: a cognitive task analysis framework toward training design. Surgical endoscopy, 1-14. (Journal paper)
- **B. Cetinsaya**, M. A. Gromski, S. Lee, Z. Xia, D. Demirel, T. Halic, C. Bayrak, C. Jackson, S. De, S. Hegde, J. Cohen, M. Sawhney, S. N. Stavropoulos, D. Jones, "A Task and Performance Analysis of Endoscopic Submucosal Dissection (ESD) Surgery,". Surg Endosc (2019) 33: 592. <https://doi.org/10.1007/s00464-018-6379-6> (Journal paper)
- Seth Cooper-Baer, Mustafa Tunc, Jake Farmer, Kutay Macit, Tansel Halic, Doga Demirel, **Berk Cetinsaya**, "Virtual Fundamentals of Arthroscopic Surgery Training (VFAST)" Arkansas INBRE, 2018. (Poster presentation)
- Doga Demirel, **B. Cetinsaya** Jake Farmer, Sinan Kockara, Shahryar Ahmadi, Tansel Halic, "Partition-based Optimization model for Generative Anatomy Modeling Language" Arkansas INBRE, 2018. (Poster presentation)
- **B. Cetinsaya**, M. A. Gromski, S. Lee, Z. Xia, D. Demirel, T. Halic, C. Bayrak, C. Jackson, S. De, S. Hegde, J. Cohen, M. Sawhney, S. N. Stavropoulos, D. Jones, "Design and Development of a Preliminary Virtual Endoluminal Surgical Simulator (VESS) for Endoscopic Submucosal Dissection (ESD) Surgery" Arkansas INBRE, 2018. (Poster presentation)
- **Berk Cetinsaya**, Mark Gromski, Sangrock Lee, Zhaohui Xia, Doga Demirel, Tansel Halic, Coskun Bayrak, Cullen Jackson, Suvranu De, Sudeep Hegde, Jonah Cohen, Mandeep Sawhney, Daniel Jones, "S074 A Task and Performance Analysis of Endoscopic Submucosal Dissection (ESD) Surgery", Surg Endosc (2018) 32(Suppl 1): 1. <https://doi.org/10.1007/s00464-018-6119-y> (Conference Paper)
- Zhaohui Xia, Tansel Halic, Sangrock Lee, **Berk Cetinsaya**, Mark A. Gromski, Doga Demirel, Coskun Bayrak, Cullen Jackson, Sudeep Hegde, Jonah Cohen, Mandeep Sawhney, Daniel Jones, Suvranu De, "P318 The Development of a Virtual Simulator for Colorectal Endoscopic Submucosal Dissection (ESD)", Surg Endosc (2018) 32(Suppl 1): 130. <https://doi.org/10.1007/s00464-018-6121-4>. (Conference Paper)
- Cullen Jackson, Sudeep Hegde, Jonah Cohen, Mandeep Sawhney, Daniel Jones, **Berk Cetinsaya**, Mark A Gromski, Sangrock Lee, Zhaihui Xia, Doga Demirel, Tansel Halic, Coskun Bayrak, Suvranu De, "P306 A Cognitive Task Analysis Approach Toward the Design of a Virtual Reality Simulator for Endoscopic Submucosal Dissection", Surg Endosc (2018) 32(Suppl 1): 130. <https://doi.org/10.1007/s00464-018-6121-4>. (Conference Paper)
- **B. Cetinsaya**, M. A. Gromski, S. Lee, Z. Xia, D. Demirel, T. Halic, C. Bayrak, C. Jackson, S. De, S. Hegde, J. Cohen, M. Sawhney, S. N. Stavropoulos, D. Jones, "Design of Virtual Endoluminal Surgery Simulator (VESS): Colorectal Endoscopic Submucosal Dissection (ESD) Training Module", Arkansas INBRE, 2017. (Poster Presentation)
- **B. Cetinsaya**, M. A. Gromski, S. Lee, Z. Xia, D. Demirel, T. Halic, et al. "Design of Virtual Endoluminal Surgery Simulator (VESS): Colorectal Endoscopic Submucosal Dissection Training Module", Program No. P1343. World Congress of Gastroenterology at ACG2017 Meeting Abstracts. Orlando, FL: American College of Gastroenterology. (Podium Presentation)
- **Cetinsaya, B.**, Gromski, M.A., Lee, S., Xia, Z., Turkseven, M., Demirel, D., Halic, T., Bayrak, C., Jackson, C., De, S. and Cohen, J., 2017., "Design of Virtual Endoluminal Surgery Simulator (VESS): Colorectal Endoscopic Submucosal Dissection Training Module: 809.", American Journal of Gastroenterology, 112, pp.S452-S453. (Conference Paper)
- **Cetinsaya, B.**, Gromski, M.A., Lee, S., Xia, Z., Turkseven, M., Demirel, D., Halic, T., Bayrak, C., Jackson, C., De, S. and Cohen, J., 2017., "Design of Virtual Endoluminal Surgery Simulator (VESS)", Arkansas Academy of Science 101th Annual Meeting. (Poster Presentation)

## PROFESSIONAL DEVELOPMENT ACTIVITIES

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- **Development and Validation of a Virtual Endoluminal Surgical Simulator (VESS) for Treatment of Colorectal Cancer**, National Institutes of Health (NIH) / National Cancer Institute (NCI), 1R01CA197491, \$1,361,583 until Fiscal Year 2018, 25/08/2016 - 31/08/2020, Collaborators: Rensselaer Polytechnic Institute, Harvard School of Medicine (Beth Israel Deaconess Medical Center (BIDMC) and Massachusetts General Hospital (MGH))  
My role:
  - Design and development of endoscopic submucosal dissection surgery,
  - Realistic force feedback using haptics,
  - Development of different simulation scenarios,
  - Initial validation of the simulator by data collection from surgeons.
- **Development and Validation of a Virtual Colorectal Surgical Trainer (VCOST)**, National Institutes of Health (NIH) / National Institute of Biomedical Imaging and Bioengineering (NIBIB), 1R01EB025241-01, \$693,484 for Fiscal Year 2018, Collaborators: Rensselaer Polytechnic Institute, Harvard School of Medicine (Beth Israel Deaconess Medical Center (BIDMC) and Massachusetts General Hospital (MGH))  
My role:
  - Designing and creating grading metrics,
  - Editing 3D models for the simulator.

## REFERENCES

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Available Upon Request