YUSUF SERMET

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EDUCATION

Ph.D. in Electrical and Computer Engineering	2015-2020 (expected)
M.S. in Computer Science	2017-2020 (expected)
M.S. in Electrical and Computer Engineering, *with Software Engineering Subprogram*	2019

The University of Iowa, Iowa City, IA, USA

B.S. in Computer Engineering	2012-2015

Department of Computer Engineering, Ege University, Izmir, TURKEY

COMPUTATIONAL SKILLS

Engineering Software	Matlab, Protege, Unity (HoloLens, Samsung Gear VR), ModelSim, Multisim, Ultiboard
Programming Languages	**Languages and Frameworks**: C++, JavaScript, Python, PHP, jQuery, HTML5, WebGL, Java, Ruby on Rails, NodeJS, C, C#, SQL, Apex, Scheme, Verilog, AngularJS, TypeScript, Dafny, A-Frame, React **Assembly Languages**: 8086, 8051 **Embedded Programming**: ARM Cortex M4F, Arduino, Raspberry Pi
Operating Systems	Windows, Linux Ubuntu/openSUSE, Mac OS X
Productivity Software	MS Office, Open Office, MS Visual Studio, Eclipse, Android SDK, Cloud9, Heroku, MS Azure, pgAdmin, MS SQL Server, Firebase, Git, Mercurial, SVN, IntuiFace, VS Code, Phabricator, Jasmine

INDUSTRIAL EXPERIENCE

Platform Rendering Intern   2018 May-August
Mozilla, San Francisco, CA
- Worked on the implementation of the CSS Containment Module for Firefox as part of a team.
- Used C++, and had a glimpse of Rust.

Software Engineer   2017 May-August
U.S. Army Corps of Engineers, San Antonio, TX
- Developed, delivered, and documented a web-based decision support tool for Texas Multi-Hazard Tournament.
- Used Yii Framework, AngularJS and PHP.

Software Engineer   2016 May-August
Historide, Irvine, CA
- My duties included bug fixes, new feature implementations in Historide backend, and updates to website layout.
- Used Ruby on Rails, HAML, and JavaScript.

Web Developer   2009-2017
Freelance, Iowa City, IA
- Designed, developed, and deployed websites for restaurants, charity organizations, and small companies.

CREATIVE SOFTWARE WORKS

National Flood Resilience Assistant
- Developed a web system to analyze flood risk, damages, and mitigation options for every residential property in US.
- Worked on product design, frontend development, and backend integration.

A Generalized Web Component for Domain-Independent Voice Assistants (*Paper***)**
- Developed a web component to integrate voice-enabled question answering systems to any website.
- Developed with JavaScript using Web Components, Shadow Dom, Event Bubbling, and CSS Containment.

Augmented Reality enabled Power Systems Analyzer (Conference *Paper***)**
- An AR-enabled Android application to infer utility pole conditions using image processing.

Flood Action VR Game (2nd Place / 200+ projects) (Conference *Paper***)**
- A mobile Flood Simulation Virtual Reality Game that can be used by emergency responders and public.
- Project awarded by Samsung and IBM.

HoloFlood (*Journal Cover***)**
- Developed a holographic flood resilience platform by recreating real-world while analyzing social & economic impact.
- Developed with Unity and Microsoft HoloLens using C#

Virtual Stream Stage Sensor (*Paper*)
- Developed an Android-based augmented reality application utilizing mobile sensors.
- Implemented the mathematical models developed by other project members.

Watershed Delineation (*Paper*)
- Designed and developed a GPGPU algorithm to delineate watersheds using the client-side GPU.
- Developed with WebGL, JavaScript, and HTML5

Flood AI as a Service
- Developed web services to integrate the following technologies with IFIS Flood AI;
    - Skype, Facebook Messenger, Google Assistant, Cortana, Slack, E-mail bots,
    - Google Home and Amazon Alexa connections, IFTTT and MS Flow integrations, Oculus VR app integration.

IFIS Flood AI (*Paper*)
- Developed a novel artificial intelligence framework for flood related knowledge generation;
    - Knowledge Base: A comprehensive flood ontology **(*Paper*)**
    - Natural Language Processing Module
    - Inference Engine and Scoring Module
    - Voice-enabled Web-based Information System
- Used PHP, JavaScript, HTML5 and PostgreSQL.

RESEARCH EXPERIENCE AND APPOINTMENTS

Graduate Student Affiliate, The Iowa Informatics Initiative, University of Iowa	2016-present
Research Assistant, Iowa Flood Center**,** IIHR—Hydroscience & Engineering	University of Iowa	2015-present
Visiting Research Assistant, Iowa Flood Center, IIHR—Hydroscience & Engineering	University of Iowa	2014 July-Oct
Intern, Tubitak (Turkey Research Council) Uzay – Space Technologies Research Institute	2013 July

PROFESSIONAL ACTIVITIES

Technical Committee, 8th International Conference on Flood Management (**Triennially held since 2000**)	2019-present
Grant Reviewer, Graduate & Professional Student Government, University of Iowa	2019-present
Organizer, Conference on Celebrating Diversity in Engineering, University of Iowa	2019-present
Trainee, Software Engineering Training, Wallbreakers	2019-present
Organizer, UIowa High School Hackathon, Liberty High School, Iowa City	2019-present
Journal Reviewer, Environmental Modelling & Software, Journal of Hydroinformatics, and SoftwareX	2018-present
Vice President, HackUIowa - Annual Midwest Hackathon, University of Iowa	2016-present
Member, Information Technology Advisory Committee, Office of the President, University of Iowa	2016-present
Member, the International Student Advisory Board, University of Iowa	2016-2017
Judge, American Geophysical Union Poster Showcase, James F. Jakobsen Graduate Conference	2015-2016

MEDIA COVERAGE

Dare to Discover Campaign: 'Dare to Deploy Artifical Intelligence'
UI Research and Economic Dev., IIHR News, IFC News, College of Engineering News (Highlight), Electrical and Comp. Eng. News

Project: 'Flood AI: An Intelligent System for Discovery and Communication of Disaster Knowledge'
KCRG TV9, Government Technology, The Daily Iowan, IIHR News, Iowa Now, IFC News, College of Engineering News (2 articles)

Project: 'Holographic Flood Resilience Platform'
*Bulletin of American Meteorological Society (BAMS) – March 2017 (**Cover**) (**Impact Factor: 7.929**), Report on Alerting Tactics by **the Department of Homeland Security***

Event: 'HackUIowa - Midwest Hackathon'
CBS 2, KWWL, The Gazette, IIHR News (Highlight), Daily Iowan (Interview), Iowa Now (Interview), Iowa Flood Center (Featured)

Project: 'Combining IoT with Crowdsourcing for Natural Disasters'
College of Engineering News (Highlight), IIHR News (Interview), UIowa Research, UI Graduate College, Iowa Engineer Magazine

AWARDS AND RECOGNITIONS

Best in JavaScript, 'National Flood Resilience Assistant', HackISU	2019
2nd Place, Tapia Student Poster Competition, Tapia Conference (i.e. ACM Celebration of Diversity in Computing)	2019
Best Poster, in Electrical and Computer Engineering, College Of Engineering Open House, UIowa	2019

Recognized Reviewer, Environmental Modelling & Software, by Elsevier 2018

Product of the Year, 'Multi-Hazard Tournament', by US Army Engineer Institute for Water Resources (IWR) 2018

Featured, in Dare to Discover Banner Series in Downtown Iowa City. Headline: **Dare to Deploy Artificial Intelligence** 2018

Runner-Up Award, 'AGU Data Visualization and Storytelling Competition', by NASA and AGU 2017

Research Grant of $20k, 'AI for Earth', by **Microsoft and ESRI**, Award: Azure Cloud Services and ESRI Software 2017

2nd Place, The Weather Channel SDC Innovation Challenge, by Samsung and IBM 2017

Various Travel Grants, by NSF, NVIDIA, NASA, CUAHSI, CGRER, UI GPSG, UI GSS, IWC, CyberGIS, UI College of Eng. 2016-present

Best Machine Vision/Object Detection Hack, 'Holographic Zombie Survival Game using HoloLens', HackISU 2016

2nd Place, Poster Contest, Iowa Water Conference, Iowa Water Center 2016

Elected, Member for Sigma Xi - The Scientific Research Society 2016

Innovation Award, 'Combining IoT with Crowdsourcing for Natural Disasters', HackISU 2016

PEER REVIEWED JOURNAL AND CONFERENCE ARTICLES

1. Teague, A., Carson, A., Hill, H., Olsen, R., **Sermet, Yusuf**, Demir, I., Muste, M., 'Serious Gaming for Water Resources Planning and Hazard Mitigation', Smart Water, 2019. (Project completed, paper in preparation)

2. **Sermet, Yusuf**, Muste, M., Demir, I., 'A Serious Gaming Framework for Decision Support on Hydrological Hazards', International Journal of Disaster Risk Reduction, 2019. (Project completed, paper ready)

3. **Sermet, Yusuf**, Demir, I., 'A Generalized Web Framework for Domain-Independent Natural Language Question Answering', arXiv preprint arXiv:1909.02507, 2019.

4. Sit, M.A., **Sermet, Yusuf**, Demir, I., 'Optimized watershed delineation library for server-side and client-side web applications', Open Geospatial Data, Software and Standards, 2019. DOI: 10.1186/s40965-019-0068-9

5. **Sermet, Yusuf**, Villanueva, P., Sit, M.A., Demir, I., 'Crowdsourced approaches for stage measurements at ungauged locations using smartphones', Hydrological Sciences Journal, 2019. DOI: 10.1080/02626667.2019.1659508

6. **Sermet, Yusuf**, Demir, I., 'Towards an Information Centric Flood Ontology for Information Management and Communication', Earth Science Informatics, 2019. DOI: 10.1007/s12145-019-00398-9

7. **Sermet, Yusuf**, Demir, I., Kucuksari, S., 'Overhead Power Line Sag Monitoring through Augmented Reality', 50th North American Power Symposium, September 9-11, 2018, Fargo, ND. DOI: 10.1109/NAPS.2018.8600565

8. **Sermet, Yusuf**, Demir, I., 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', Int'l Conference on Modeling, Simulation and Visualization Methods (MSV'18), Jul 30-Aug 2, 2018, Las Vegas, NV.

9. **Sermet, Yusuf**, Demir, I., 'An Intelligent System on Knowledge Generation and Communication about Flooding', Environmental Modelling & Software, 2018. DOI: 10.1016/j.envsoft.2018.06.003

10. Demir, I., Yildirim, E., **Sermet, Yusuf**, Sit, M.A., 'FLOODSS: Iowa Flood Information System as a Generalized Flood Cyberinfrastructure', The International Journal of River Basin Management, 2017. DOI: 10.1080/15715124.2017.1411927

BOOK CHAPTERS

11. **Sermet, Yusuf**, Demir, I. Chapter on 'Virtual and Augmented Reality Applications for Environmental Science Education and Training', Book: "New Perspectives on Virtual and Augmented Reality: Finding New Ways to Teach in a Transformed Learning Environment", Taylor & Francis. Edited by L. Daniela et al., 2019. (in press)

PHD DISSERTATION

12. **Sermet, Yusuf**, 'Next-Generation Environmental Knowledge Generation and Communication', 2020. (In preparation)
    Supervisors: Ibrahim Demir, Assistant Professor, Civil and Environmental Engineering, University of Iowa, USA.
    Anton Kruger, Professor, Electrical and Computer Engineering, University of Iowa, USA.

CONFERENCE PRESENTATIONS

More than 30 conference presentations as both oral and poster, including GPU Technology Conference, SIGGRAPH, AGU Fall Meeting, Tapia Conference, AWWA Annual Conference, AMS Annual Meeting, iEMSs, CyberGIS, and more.

1. **Sermet, Yusuf**, Demir, I., 'Next-Generation Environmental Information Systems using Immersive Technologies and Artificial Intelligence', The 8th International Conference on Flood Management, August 17-19, 2020, Iowa City, IA

2. **Sermet, Yusuf**, Demir, I., 'Virtual Stage Sensors: Alternative Approaches for Smartphone-Based Crowdsourced Water Level Measurements', Tapia 2019 - ACM Richard Tapia Celebration of Diversity in Computing, September 18-21, 2019, San Diego, CA.

3. **Sermet, Yusuf**, Demir, I., 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', ACM SIGGRAPH 2019, July 28- August 1, 2019, Los Angeles, CA.

4. **Sermet, Yusuf**, Demir, I., Virtual Stage Sensors: Alternative Approaches for Smartphone-Based Crowdsourced Water Level Measurements" The 17th Annual College of Engineering Research Open House, April 11, 2019, Iowa City, IA, USA.

5. Demir, I., **Sermet, Yusuf**, 'Integration of Intelligent Systems and Novel Visualization Techniques in Data-Driven Geoscience Education', AGU Fall Meeting, December 10-14, 2018, Washington, DC.

6. **Sermet, Yusuf**, Demir, I., 'Flood Action VR: A Virtual Reality Framework for Disaster Awareness and Emergency Response Training', Tapia 2018 - ACM Richard Tapia Celebration of Diversity in Computing, September 19-22, 2018, Orlando, FL.

7. **Sermet, Yusuf**, Demir, I., 'Flood AI: An Intelligent Systems for Discovery and Communication of Disaster Knowledge', 9th International Congress on Environmental Modelling and Software, June 24-28, 2018, Fort Collins, CO.

8. Demir, I., **Sermet, Yusuf**, Krajewski, W.F., 'An Intelligent System for Discovery and Communication of Extreme Events', AMS Annual Meeting, January 7-11, 2018, Austin, TX, USA.

9. Demir, I., **Sermet, Yusuf**, 'Flood AI: An Intelligent Systems for Discovery and Communication of Disaster Knowledge', AGU Fall Meeting, December 11-15, 2017, New Orleans, LA, USA.

10. **Sermet, Yusuf**, Demir, I., 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence: Flood AI Alpha', Tapia Conference, September 20-23, 2017, Atlanta, GA, USA.

11. Yildirim, E., **Sermet, Yusuf**, Demir, I., 'Web-based Flood Damage Estimation and Emergency Management', 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.

12. **Sermet, Yusuf**, Sit, M.A., Demir, I., 'Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems', 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.

13. Demir, I., **Sermet, Yusuf**, 'Intelligent Systems and Knowledge Discovery for Data-Driven Communication and Education', 2017 CUAHSI Conference on Hydroinformatics, July 25-27, 2017, Tuscaloosa, AL, USA.

14. **Sermet, Yusuf**, Sit, M.A., Demir, I., 'Real-Time Web-Based Watershed Delineation Using Javascript, Python And Webgl', AWWA Annual Conference and Exposition (ACE17), June 11-14, 2017, Philadelphia, PA, USA.

15. Demir, I., **Sermet, Yusuf**, 'Intelligent Systems and Knowledge Discovery for Communication of Extreme Weather and Disaster Preparedness', GPU Technology Conference, May 8-11, 2017, San Jose, CA, USA.

16. **Sermet, Yusuf**, Agliamzanov, R., Sit, M.A., Demir, I., 'Scientific Computations On Gpu On The Web: A Use Case Of Distrubuted Volunteer Computing For Hydrologıcal Applications', GPU Technology Conference, May 8-11, 2017, San Jose, CA, USA.

17. **Sermet, Yusuf**, Sit, M.A., Demir, I., 'Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems', Iowa Water Conference, March 23-24, 2016, Ames, IA, USA.

18. Villanueva, P., **Sermet, Yusuf**, Demir, I., 'Virtual Stream Stage Sensor Using Projected Geometry and Augmented Reality for Crowdsourcing Citizen Science Applications', American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA, USA.

19. Demir, I., **Sermet, Yusuf**, 'Knowledge Discovery, Integration and Communication for Extreme Weather and Flood Resilience Using Artificial Intelligence: Flood AI Alpha', American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA, USA.

20. Sit, M.A., **Sermet, Yusuf**, Demir, I., 'Flood and Weather Monitoring Using Real-time Twitter Data Streams', American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA, USA.

21. **Sermet, Yusuf**, Sit, M.A., Demir, I., 'Benchmark of Client and Server-Side Catchment Delineation Approaches on Web-Based Systems', American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA, USA.

22. Yildirim, E., **Sermet, Yusuf**, Demir, I., 'Flood Damage and Loss Estimation for Iowa on Web-based Systems using HAZUS', American Geophysical Union (AGU) Fall Meeting, December 12-16, 2016, San Francisco, CA.

23. Sit, M.A., **Sermet, Yusuf**, Demir, I., 'Real-Time Flood Monitoring and Preparedness Using Twitter Data Streams', 12th Int. Conference on Hydroinformatics (HIC) 2016, August 21-26, 2016, Incheon, South Korea.

24. **Sermet, Yusuf**, Demir, I., 'Towards a Generalized Knowledge Engine for Disaster Preparedness and Response', 12th Int. Conference on Hydroinformatics 2016, August 21-26, 2016, Incheon, South Korea.

25. **Sermet, Yusuf**, Demir, I., 'Information Centric Disaster Ontology for Environmental Cyberinfrastructure Systems', 12th Int. Conference on Hydroinformatics (HIC) 2016, August 21-26, 2016, Incheon, South Korea.

26. **Sermet, Yusuf**, Sit, M.A., Demir, I., 'Real-Time Watershed Delineation on the Client-side Web Applications', The 3rd International Conference on CyberGIS and Geospatial Data Science, July 26-28, 2016, Urbana, IL

27. **Sermet, Yusuf**, Demir, I., 'Web-Based Knowledge Generation for Early Disaster Response and Recovery', AWWA Annual Conference and Exposition (ACE16), June 20-22, 2016, Chicago, IL, USA.

28. Chitale, A., Hegeman, J., **Sermet, Yusuf**, Thirupatti, B., 'Towards an IoT Based Concussion Assessment and Impact Analysis Framework', Modern Marvels, May 5, 2016, Iowa City, IA, USA.

29. **Sermet, Yusuf**, Demir, I., 'Computational Knowledge Engine for Hydrological Systems using Semantic Web, Iowa Informatics Showcase Symposium, April 22, 2016, Iowa City, IA, USA.

30. **Sermet, Yusuf**, Demir, I., 'Client-side GPGPU Web Application for Catchment Delineation and Watershed Segmentation', GPU Technology Conference, April 4-7, 2016, San Jose, CA, USA.

31. **Sermet, Yusuf**, Demir, I., Krajewski, W.F., 'Automatic Knowledge Generation for Disaster Management using Ontology', Iowa Water Conference, March 23-24, 2016, Ames, IA, USA.

32. **Sermet, Yusuf**, Demir, I., Krajewski, W.F., 'Information Centric Disaster Ontology for Environmental Cyberinfrastructure Systems', Iowa Water Conference, March 23-24, 2016, Ames, IA, USA.

33. Demir, I., **Sermet, Yusuf**, Krajewski, W., 'Voice-enabled Knowledge Engine using Ontologies and Natural Language Processing for Weather and Hydrological Data', 2016 AMS Annual Meeting, January 10-14, 2016, New Orleans, LA, USA.

34. Demir, I., **Sermet, Yusuf**, Krajewski, W.F., 'Voice-enabled Knowledge Engine using Flood Ontology and Natural Language Processing', American Geophysical Union (AGU) Fall Meeting, December 14-18, 2015, San Francisco, CA, USA.

35. **Sermet, Yusuf**, Demir, I., A Comprehensive Flood Ontology for Environmental Cyberinfrastructure Systems', Presented at the December 2015 Graduate Virtual Poster Showcase, AGU Showcase, Washington, DC.

36. Sit, M.A., **Sermet, Yusuf**, Demir, I., 'Real-time Social Media Analysis for Flood Monitoring and Prediction - Twitter Use Case', Presented at the December 2015 Undergraduate Virtual Poster Showcase, AGU Showcase, Washington, DC.