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Photo of Lake Whatcom by recent CS Alumnus Vadim Trushkov from a Senior Project led by Dr. Aran Clauson
Dr. Perry Fizzano

Letter from the Chair

Greetings Alumni and Friends of WWUs CS Department!

This Fall brought 4 new tenure-track faculty and 2 new non-tenure-track faculty to the department, bringing us to 24 faculty to go along with 7 staff. We had to make some physical changes to our building to accommodate. Our old staff/faculty lounge is now 2 offices, our old conference room is now the faculty/staff lounge, a classroom on the 4th floor was turned into an active learning lab, new labs on the ground floor were created for our department, and the list goes on. In sum, we added 60 new general lab seats, 2 new research labs, and office space for 7 this summer. Our tech support team is working to furnish these spaces with equipment.

On the research front, WWU CS students Stephanie Mason and Ted Weber earned first and second place respectively in the ACM Undergraduate Research Competition at the Grace Hopper Celebration of Women in Computing. There’s an entire article on this, but a shout out here is necessary because I’m so proud. Their success is a testament not only to their hard work, but also that of their faculty mentors. Great job putting CS@WWU on the national map!

Our graduates continue to be in high demand nationally. Students did internships last summer from Charlotte to Chicago, DC to Seattle, and graduates took positions in Denver, Austin, San Francisco, and of course Seattle and Bellingham. While most of our graduates stay in the great state of Washington, they’re being recruited nationally more than ever, further evidence to the quality of their education.

The department is at a crossroads trying to balance the desire to keep our program intimate, while also serving the students’ interests. This year the number of first-year students who listed CS as their first interest was over 200, the second most among all majors. All indications are that this will increase in the future. What do we do about all this interest? It’s a question we ponder regularly around here.

Wishing you the best for the coming year!
Stay in touch with department happenings by connecting with us via Facebook, Instagram, and LinkedIn.

Dr. Perry Fizzano
Stephanie Mason and Ted Weber won first and second place respectively in the ACM Undergraduate Research Competition at the 2017 Grace Hopper Conferences with their bioinformatics and intelligent intervention research projects supervised by Assistant Professors Filip Jagodzinski and Moushumi Sharmin. The prestigious competition is judged by a panel of judges and attendees, and involves a poster presentation and formal research presentation. There were 22 participants selected by a panel of experts to present in the competition, and only 2 participating from Western.

Stephanie’s winning project developed a compute pipeline for investigating the rigidity and flexibility properties of protein cavities. Cavities in proteins facilitate a variety of biochemical processes, and the shapes and sizes of cavities are factors that contribute to specificity in ligand binding, and docking with other biomolecules. The work has the potential to inform structure-based drug design studies. Stephanie mentioned that the experience was surreal.

“It was a very unique experience to be surrounded by a huge number of people, almost all women, who all obviously had backgrounds, experiences, and interests in tech,” Stephanie said, “and it was neat to see the kinds of home grown projects some small companies were working on, as well as the sort of mind boggling technologies that a few really big companies are developing.”

For his research, Ted designed a participant-centric smoking cessation support system aiming to provide just-in-time intervention by objectively identifying factors contributing to lapse (e.g. stress, negative affect, presence of smoking cues) and then enable smokers to make informed decisions about their current activities to prevent lapse. Ted developed an Android application that utilizes physiological (stress, activity intensity) and contextual data (time, location) to create a personalized analytics platform that offers several visualizations related to smoking behavior. Findings from this research can lead to optimal intervention design for other types of addiction as well. As a first time attendee, Ted summarized his GHC experience as “excellent.” Looking back, his take-away from the conference is “the realization that other people find my research interesting, and worth pursuing. After speaking with other researchers and industry figures at the ACM student research competition I was able to validate my progress, and even discuss new ideas related to my work.”

For next steps, Ted is working to devise an algorithm to identify the optimal time for intervention delivery. Ted will continue with this work in the last year of the Fast Track M.S. program, while Stephanie has applied to several Ph.D. bioinformatics programs and looks forward to graduate work in those fields.
I enjoy exploring artificial intelligence, game design, and software architecture. I began working in these areas while completing my Ph.D. in Computer Science at the University of Arkansas. I started developing knowledge representations and expert systems to address big data challenges, and eventually moved into designing 3D virtual worlds and software agents modeling the real world using pervasive technologies. I always enjoyed problem solving and video games, and this latter work showed me how to merge my interests with my research. I also worked in industry as a software engineer and architect, designing enterprise systems for supply-chain management and logistics. My current research, called “Human Workflow Understanding,” explores enabling computers to understand human activities. I’m working with students to develop a simulation platform that uses 3D virtual worlds to evaluate different techniques for representing, recognizing, and learning workflows. Outside academia, I enjoy relaxing activities such as gaming and mixed martial arts. I also like to be active outdoors with my family. The trail system in the area was great to hike during the warmer months. Now that it’s colder, I’ve taken up snowboarding and my kids are learning how to ski.

Wesley Deneke

Before joining WWU, I worked as a Postdoctoral Research Staff Member in the Center for Applied Scientific Computing at Lawrence Livermore National Laboratory. Broadly, I’m interested in improving the performance of applications on extreme-scale computing environments. My research spans fault-tolerance, performance analysis, and power-aware resilience. I earned my Ph.D. in Computer Engineering from Purdue University, and my Bachelor’s degree in CS and Engineering from Bangladesh University of Engineering and Technology. I’m also the co-founder of Bangladeshi Women in CS and Engineering (BWCSE.)

In my free time I enjoy exploring the world with my toddler, listening, reading, and outdoor activities.

Tanzima Islam

As the new Assistant Professor of CS & Science Education, I’m interested in improving the efficacy of CS education through different approaches and expanding through the K-12 levels. I received both my Ph.D. in Learning, Design, and Technology, and my M.S. in Computer Science from the University of Georgia. My primary research focuses include CS education and educational data mining. I adopted a cat named Char when I moved to Bellingham, so now in my spare time I practice catology.

Qiang Hao

As the new Assistant Professor in Learning, Design, and Technology, my research interests revolve around online deception, cybersecurity, data mining, and machine learning. Currently I’m focused on developing algorithmic and other design solutions for deception detection and prevention, as well as enhancing collaboration and performance in various domains. My background covers many years of interdisciplinary work in academic departments varying from Sociology to Information Science. In past projects, I was actively involved in online communities, web development, and design, while some of my most rewarding endeavors came from collaborations with many students across all levels and backgrounds. My spare time is mostly spent with my wife and two kiddos, playing video games, hiking, and listening to metal music.

Michael Tsikerdekis

As my long last name suggests, I’m originally from Greece. I grew up there, did my undergraduate work at Aristotle University, and then moved on to the Czech Republic where I worked for IBM and completed my Ph.D. at Masaryk University. I then served for 4 years as an Assistant Professor at the University of Kentucky. Like many before me, I eventually loaded my ox and moved on west to WWU. My research theme lies at the intersection of computational system and social systems, and my research interests revolve around online deception, cybersecurity, data mining, and machine learning. Currently I’m focused on developing algorithmic and other design solutions for deception detection and prevention, as well as enhancing collaboration and performance in various domains. My background covers many years of interdisciplinary work in academic departments varying from Sociology to Information Science. In past projects, I was actively involved in online communities, web development, and design, while some of my most rewarding endeavors came from collaborations with many students across all levels and backgrounds. My spare time is mostly spent with my wife and two kiddos, playing video games, hiking, and listening to metal music.
Faculty of the Year

Our ACM student chapter annually conducts a survey to honor an outstanding faculty member at our CS picnic held in mid-June. This year Dr. Filip Jagodzinski shined, praised by students for being a passionate and caring teacher and research advisor, dedicated to student success. Students submit these comments --

“He really cares about his students and does so much to make sure everyone understands and feels comfortable.”

“He’s always optimistic, and positive about all aspects of life, and you can tell that he cares deeply about his students. And most importantly, he can handle a lot of sarcasm.”

“I’ve never seen someone so passionate about the subject they teach, and the method in which they teach it. Filip sets clear goals for us students and doesn’t give us extreme expectations.”

“I really enjoyed taking concurrency with Jagodzinski. Lectures and assignments were always very well prepared. It was evident he truly cared about students’ success and he certainly gave students the opportunity to set ourselves up for success.”

Congratulations, Filip!

New Instructors

Susheel Gopalan

Before joining the faculty at WWU, I was a Principal Development Lead at Microsoft where I worked in various Embedded Engineering capacities over the last fifteen years. Before Microsoft, I worked as an Embedded Engineer at Rockwell Automation, Eastman Kodak, and G.E.C Marconi (EASAMS.) I graduated from the University of Calgary with a B.S. in Electrical Engineering (Minor: Computer Engineering) in ’91 and a M.S. in Electrical Engineering (Minor: Communications) from the University of New South Wales in 2001. My interest in teaching led me to volunteer as a high school computer science teacher and develop an “Accelerated Learning Series” on fundamental topics in Hardware, Firmware and Software Engineering. I’m currently teaching CSCI 247, Computer Systems I, and guiding a team through the senior project series.

Justice Banson

I have a M.Ed. in Information Technology from the University of Cape Coast, Ghana, as well as a certificate in Software & Data Processing from the National Institute of Computer Technology in Chandigarh, India, and specialized training in multimedia and web design technology from the Center for Development of Advanced Computing in Mohali, India. This quarter, I’m teaching Computer-Mediated Communications and Dynamic Web Pages. My teaching philosophy is founded on the principles of practice and discussion, all of which are essential to technical understanding and progress. I work to maintain a student-centered classroom relying on active participation. In my free time, I enjoy watching soccer, fishing, and playing guitar.
The CS mentors program is now 10 years old, beginning as a one-on-one mentoring program in the style of big brother and big sister programs, and evolving into the wonderful service we have today. Backed by funding from the College of Science and Engineering, the CS mentors currently help students between 4 and 7 pm, Monday through Friday. Current head mentor, Robin Cosbey, is 1.5 years through a 2 year commitment as head mentor, scheduling workshops and managing a number of other tutors.

The origin of the program was an email message I sent as department chair in January 2008, to all Computer Science majors:

"I often get questions from new or prospective students or their parents about the availability of student mentors. In response, I would like to start a student mentor program. The idea is that CS majors at the junior or senior level volunteer to act as mentors to pre-majors and other new students. It should not require a large amount of your time - just meet with the student occasionally to give them help and guidance with the CS program and campus life generally. I think it would be beneficial for all of us if we could get this going. If you would like to register as a student mentor, please email me with your contact details."

I soon received responses from 18 CS majors interested in registering as mentors. Encouraged by this response, I sent the following email to all students who I thought might utilize this program:

"I have started a student mentor program within the Computer Science Department. The idea is that CS majors at the junior or senior level volunteer to act as mentors to pre-majors and other new students. A university campus and a department like ours can be very bewildering for new students. If you are interested in Computer Science, but feel confused or unsure about the program, need some advice, could use some help with your homework, or would just like have a more experienced student to talk to, maybe a mentor could make a big difference. If you would like to be put in contact with a mentor, please let me know and I will arrange it."

When any student sent me a request for a mentor, I personally tried to match them with the person I found most appropriate. The mentors program continued on this basis for three years, with several positive outcomes;

1. The student mentors provided valuable support for many less experienced students.
2. Several original mentees later became mentors themselves.
3. Students who had served as mentors thanked me for providing the opportunity of mentoring. I was greatly touched by this, as I felt it was I who owed them my gratitude for their hard work!

At the end of the first 3 years, the president of the student ACM chapter thanked me for establishing the program, and informed me the students wished to run it themselves -- a wonderful development! Not only did it release me from administrative tasks, but enabled the students to shape the program in a form they felt would be maximally beneficial to their fellow students. Under my guidance, and the excellent leadership of students, the program has further evolved and prospered into the extremely valuable resource we have today. To all the students who participated in this program over the decade, I say “Thank you! Well done!”
Students seeking work know too well the frustrations of preparing for job interviews, where the questions belong to a specialized set focused on data structures, algorithms, and object-oriented design. Students spend their weeks working on assigned projects and homework with known deadlines, but interviews are scheduled at employers’ discretion and can occur anytime during the year. Preparation requires constant upkeep, and it’s difficult to find time to adequately prepare. Furthermore, the questions in interviews generally don’t appear in CS or Engineering curriculums. The questions require learning ways of approaching rather unusual computational problems. The WWU Whiteboard Coders intend to alleviate the anxieties behind interviewing by tackling the toughest problems. After speaking with prospective student members, I was able to gather a group of co-founders and we officially launched the club in Winter 2017.

During our meetings, we try to simulate the interview process while focusing on whiteboard coding. Many employers recommend preparing by studying from the popular book “Cracking the Coding Interview.” There are also online resources such as LeetCode and HackerRank that are also very popular sources of problems. We use these resources to generate our weekly coding questions, with typically three questions for one meeting; Level 1 questions accessible to anyone with interest, Level 2 questions generally requiring data structure and some coding knowledge, and Level 3 questions intended to stump even the most experienced coders. In the interest of simulating the pressure of an interview, we limit ourselves to 30 minutes to solve the problem in small groups. After attempting a problem, volunteers from each level explain their solutions to everyone. We end by looking at the best solution to the problems and working through them together. The dedicated weekly time, comradery, exposure to problems and solutions, as well as hands on practice are all reasons to keep our club thriving.

- Simon Haile, Whiteboard Coders Founder
This year, two enthusiastic CS students embarked on international study experiences: Roman Alonzo went to Bern, Switzerland and Paul Weidner to Guanajuato, Mexico. They returned to Western inspired and with expanded perspectives, sitting down with CS undergraduate adviser Mary Hall to share their stories.

**CS in Switzerland**

Roman knew from the start that he wanted to study abroad, and the wide selection of opportunities available through WWU was a factor in choosing Western. Roman spent fall semester at the University of Bern in Switzerland. With free time he went on hiking day trips around Switzerland, and on weekends visited Brussels, Leuven, and Bruges. He also visited Munich for Oktoberfest, Prague, London, Paris, Liechtenstein, Como, Amsterdam, and Luxembourg. Here is what he had to say about taking CS classes at the University of Bern.

**How do courses differ from WWU CS classes?**

RA: Computer Science in Switzerland is taken very seriously, so the software engineering course I took was really different than what I’m used to in the US. The entire semester was spent with a small group creating a tech product, which I have linked to my GitHub. It was really cool working with a team to deliver a product that our client gave us requirements for. We started from the base and worked up (making the database and code base from scratch). I learned a lot about how to communicate with a team of diverse backgrounds in technical ability and experience, and how to set up a weekly assignment/goal plan.

**What teaching differences or tech innovations did you experience?**

Making the project, we used SQL database using XML, Apache Maven in Spring Tool Suite, and Trello/Slack for communication. These were all new software to me but I learned how to use them effectively through practice. Teaching differences include no graded homework (excluding weekly project evaluations), and only one exam at the end of the semester.

What advice do you have for students thinking about study abroad?

DO IT. Spend a lot of time assessing options and envisioning your lives at those different places. It’s so important for people to leave their home countries, no matter where you live.
Eco-gastronomy and Applied Tech in Mexico

Interested in Spanish language and culture, Paul initially took Spanish as a way to fulfill GUrs, and later selected it as a minor. He never had a desire to sit in a classroom elsewhere until he took an Eco-gastronomy class. Then he went on a faculty-led global learning course exploring the topic in Mexico. It was this perfect opportunity which led him to take fall quarter off from school to stay in Mexico for a few months, traveling and volunteering.

Tell us about the program you went on. Where did you go? What did you do?

PW: I went on a two-week long faculty led program to the state of Guanajuato, Mexico. Our class focused on food and water culture in the region. Working with the owner of a local market, we visited local farms and businesses empowering the gastronomic wave in the area. The latter part of our class was spent with an organization called Caminos de Agua; after learning about the organization and the history around their fight for water equality, our class stayed in a village heavily affected by the water crisis, helping construct water cisterns. After the class, I stayed in Mexico for 3 more months; 2 months at Ranch/School, and a month traveling. One of the most memorable moments abroad was visiting the pyramids at Cañada de la Virgen.

In what way do you feel your experience abroad prepared you for a future career in CS?

I came eager to explore the role technology has, or could have, in agriculture, primarily small scale agriculture. I left seeing various technologies already in use, and learned about future applications currently being explored. I became interested in alternative housing/energy projects and the role technology could have there, as well. Learning outside of the classroom is very exciting, but can also be very hectic. Our class was composed of non-stop experiences. I learned the importance of reflecting on these experiences in order to better understand them. I also experienced and further developed an understanding of how universal technology is.

We hope sharing these experiences will encourage other CS students to study abroad!

For more info on programs available at WWU, please visit https://studyabroad.wwu.edu/

Bon Voyage!

Mary Hall, CS Undergraduate Advisor
Departmental Scholarship Winners

Back Row, Left to Right:

- Noah Strong  Anthony G. Vallot Jr. Memorial Scholarship
- Kurt Price  Dealer Information Systems Computer Science Scholarship
- Jonathan Mooneyham  Computer Science Graduate Fellowship
- Ted Weber  David W. Cole Endowment
- Daniel Fagerlie  Power Up Scholarship
- Andy Brown  Track Global Fellowship in Computer Science
- Nick Majeske  Kaiser-Borsari Educational Foundation Scholarship for Computer Science
- Robin Cosbey  Dealer Information Systems Computer Science Scholarship & WWU CS Citizenship Award
- Sara Johnson  Lars and Elaine Giusti Scholarship for Computer Science

Front Row, Left to Right:

- Sophia Anderson  Learn You An Education For Great Good Scholarship
- Madison Dyckman  Docusign Computer Science Scholarship
- Katie Hursh  Scottish Rite Computer Science Scholarship
- Jennifer Bateman  Mark Lockwood Memorial Scholarship
- Hannah Fink  Kaiser-Borsari Educational Foundation Scholarship for Women in Computer Science
- Brian Barragan-Cruz  Docusign Computer Science Scholarship
- Ellyn Ayton  Robert L. Hamilton Family Graduate Fellowship in Computer Science

Not Pictured:

- Miranda Skar  Cloud Security Alliance Scholarship for Cyber Security
- Sarah McKee  Computer Science TAG Scholarship
- Dagmar Knecthel  Department Tuition Waiver
- Sarah Gunderson  Women in Computing Scholarship

Congratulations!
Both the Computer Science Department and the broader university community mourn the loss of Professor James Johnson, who passed away suddenly at home on February 14th at the age of 75.

Professor Johnson was born June 24, 1942 in Louisville, Kentucky to James L. and Georgia Johnson. Jim earned his B.A. from the University of Louisville, and his M.S. and Ph.D. from the University of Minnesota.

Professor Johnson joined Western in 1981 and joined faculty of the Computer Science Department in 1983, and thus has been affiliated with the department since its inception. He served as the second chair of the Computer Science Department for eight years and is the person most senior faculty members remember as their first chair. He loved university life and at his death was still active in teaching and research. During his career, he published many articles and two books; Probability and Statistics for Computer Science and Database: Models, Languages, Design, and was nearing the completion of a third, written with his collaborator Don Chalice of the mathematics department. It was tentatively titled A First Course in Algorithm Analysis. Professor Johnson also consulted for the National Security Agency and was one of two members in the department to hold a Top Secret security clearance.

He and Shelley Hoeck were married on July 6, 1997 and together they raised their two children, Jessica and Jimmy, who both inherited his love of learning.

He was preceded in death by his parents and his brother Charles. In addition to his wife, Professor Johnson is survived by their children, his sisters Jill, Shirley, and Midge, brother Robert, and many friends.

A celebration of Jim’s life was attended by family, friends, colleagues, and students on March 8th at Westford Funeral Home in Bellingham, Washington. You can share your memories with the family at www.westfordfuneralhome.com