*Las*MATRICES

VALDOSTA STATE UNIVERSITY
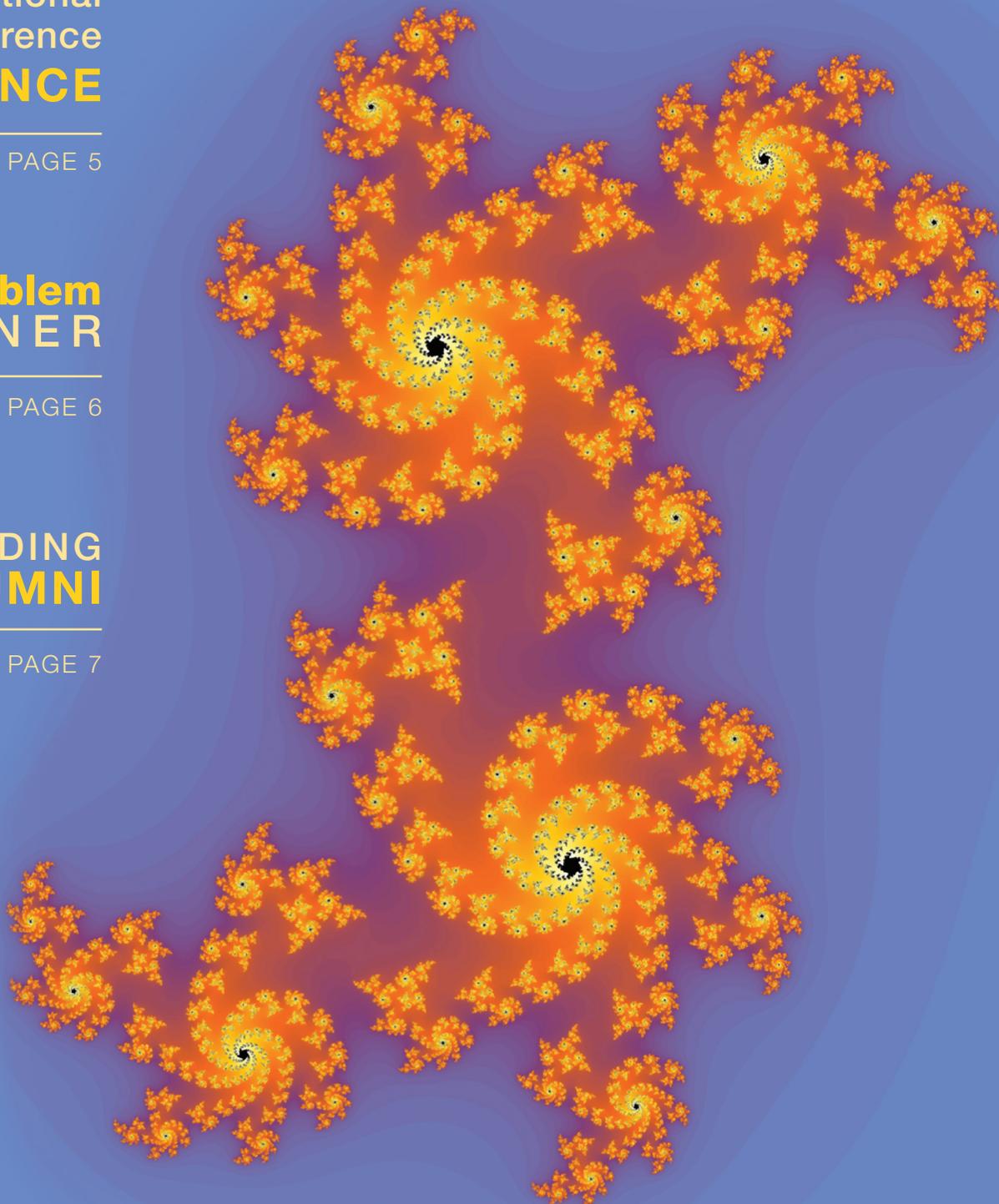
A WORD FROM OUR CHAIR

Greetings to friends and alumni of the Mathematics & Computer Science Department at Valdosta State University. 2015 was an exciting year for us. We welcomed a new faculty member, Dr. Anurag Dasgupta, to our computer science program. In addition, we celebrated the accomplishments of Dr. Jemal Mohammed-Awel, who was promoted to Professor, Drs. José Vélez and Victor Chen, who were promoted to Associate Professor, and Ms. Vickie Graham and Ms. Janice Lowe, who were promoted to Senior Lecturer.

Our students accomplished great things in 2015. During the spring, Sherri Burks, Charles Griffis, Jonathan Hernandez, Brooke Johnson, Ilya Rogers, and Christopher Whelan gave presentations at the VSU Undergraduate Research Symposium (URS). In addition, 16 of our students presented 11 posters at the VSU URS. During the summer, Sherri Burks, Josh Harrison, Ilya Rogers, and Christopher Whelan each had articles published in the Proceedings of the 2015 International Conference on Scientific Computing (CSC 2015). In addition, Sherri presented her article at CSC 2015 in person in Las Vegas. During the fall, Taylor York and Geoffrey Buie-Collard presented their research at the Fifth Annual Kennesaw Mountain Undergraduate Mathematics Conference.

In addition to our constant pursuit of academic excellence in our undergraduate mathematics and computing programs, the department also reaches out to grade k-12 students and encourages them to pursue studies in science and mathematics through a variety of on-campus programs. During 2015, we hosted over 500 area k-12 students at six different outreach events.

During 2015, our faculty conducted research and published articles in peer-reviewed state, national, and international journals and proceedings. In addition, the faculty continued their ongoing pursuit to improve the undergraduate learning experience and opportunities for our students. During the fall the hard work of the computer science faculty paid off as the ABET on-campus accreditation team found "no shortcomings" in our Computer Science program. Accreditation of our program ensures our students of a quality learning experience, provides our graduates with a nationally recognized degree, and promotes continuous improvement of our program. Also during the fall, our secondary education track for the B.A. in mathematics was approved by the Georgia Professional Standards Commission so that our mathematics majors can now pursue high school teacher certification in mathematics as part of their program. We believe that our future enrollment will increase as prospective students hear about these two great programs

During the fall, we honored our department's outstanding alumnus, Dr. Parmy (Singh) Cobb, who is profiled in this newsletter. We congratulate Dr. Cobb for her many accomplishments.

Throughout 2015, the department continued our strong partnerships to serve our students and region. Our corporate sponsor Nexxtep Technologies provided a $500 scholarship to our outstanding computer information systems major, while Azalea Health co-sponsored and awarded $1,750 in prize money for our Hackathon programming contest.

We greatly appreciate the people who donate to our program. As an indicator of our faculties' commitment to our institution, in 2015 the faculty contributed approximately 40% of the total amount donated to our department. As we strengthen our programs, promote undergraduate research, and provide k-12 outreach, we also make our graduates attractive in the job market, strengthen the value of our alumni's degrees, empower young minds, and enrich our community. We encourage you to consider partnering with us in 2016 as we strive to meet the needs of our region by donating to our Math/CS department fund at www.valdosta.edu/administration/advancement.

We would also enjoy hearing your ideas of how you can partner with us to meet the needs of our region. Further, we encourage our alumni to send in your alumni news to appear in our next newsletter. You can communicate with us at mathcs@valdosta.edu.

Have a Happy 2016!
Greg Harrell, *Ph.D., Professor & Department Head*
Mathematics & Computer Science

The 5ᵗʰ Annual KENNESAW MOUNTAIN Undergraduate Mathematics Conference

Ms. Taylor York and Mr. Geoffrey Buie-Collard, both Math majors at VSU, have been involved in mathematical research under Professors Kicey and Ault this semester.

The topic of their research is "Application of Fourier Transforms to Corridor Paths". Their research is a continuation of the research previously done by then math major and recently graduated Mrs. Brooke Johnson.

Taylor and Geoffrey first introduced their presentation at the VSU College of Arts and Sciences Faculty/Student Research Colloquium on October 22, 2015, along with Professor Kicey, who presented background material prior to the student presentations, and Professor Ault, who presented some generalizations afterwards.

They then presented their research at the Fifth Annual Kennesaw Mountain Undergraduate Mathematics Conference, October 24, 2015. Geoffrey, Taylor and Charles had a nice drive, until nearing Atlanta, where the last 30 miles took 2 hour! This large two-day conference was attended by students and faculty from more than eight states.

At the meeting, Taylor and Geoffrey met our former VSU Math colleague, Dr. Jun Ji. We are happy to report that he is well and energetic and that his family is doing well.

We are also happy to report that Taylor graduated in December 2015 and is now employed by Cigna Insurance.

Las**MATRICES**

Departmental**NEWS**

- **Dr. Haiquan "Victor" Chen** published and presented the joint-work article entitled *"Performance-to-Power Ratio Aware Virtual Machine (VM) Allocation in Energy-Efficient Clouds"* at the **IEEE International Conference on Cluster Computing (Cluster 2015)**, held in Chicago, Sept. 8-11, 2015. IEEE cluster is one of the top tier conferences on large-scale data processing, cloud, and parallel computing.

- **Dr. Radu P. Mihail's** joint-work article entitled *"Sky Segmentation in the Wild: An Empirical Study"* will appear in the proceedings of the IEEE WACV (Winter Conference on Applications of Computer Vision) 2016. Also, Dr. Mihail's student, Robert Putman, received the second best poster place in the 2015 undergraduate research symposium at VSU.

- **Dr. Anurag Dasgupta**, who joined to our department in Fall 2015, collaborated with a faculty member and a graduate student from the Department of Computer Science & Engineering of West Bengal University of Technology, India. They completed a paper entitled *"Selfish Node Detection and Low Cost Data Transmission in MANET using Game Theory"*, which won the best paper award in the **Eleventh International Conference on Communication Networks (ICCN 2015)**, held in Bangalore, India during August 21-23, 2015.

- **Dr. Zhiguang Xu**, presented the paper *"Classification of Bird Sounds Improved by a Parallelized Flocking Algorithm"* at the **3rd International Symposium on Fundamental and Applied Sciences (ISFAS 2015)** held in Osaka, Japan, in March 2015.

- The ABET accreditation team conducted an on-campus review of our Computer Science program on September 20-22, 2015. In their debriefing to the President, VP and Dean, the evaluation team said that our computer science program has "no shortcomings" and satisfies the general criteria for accreditation. The evaluators were very, very pleased with the job that the computer science faculty did. Next, the accreditation team will file their formal report with ABET, then ABET will send a formal pronouncement in July 2016. Any Computer Science students who graduates after November 2015 will be considered as graduated from an ABET accredited program.

- **Dr. Chunlei Liu** published the joint-work article entitled *"An Automatic Course Assessment Tool for Weakness Identification"* in the journal **Advances in Social Science, Education and Humanities Research** in November 2015. Also, **David R. Gully**, a student who conducted research under Dr. Liu, published a research paper entitled *"Technologies and Advances in Self-Driving Cars"* in the VSU undergraduate research journal **Omnino**.

- A B.S. in Computer Science student, **Christopher M. Whelan**, who is about to graduate in Spring 2016, was hired by **Google** after a series of four interviews under the position of Engineering Resident, which is a 1-year program that provides new college graduates with a greater foundation in Computer Science as well as experience developing complex systems alongside Google engineers. Though it is for fixed-term employment, Engineering Resident is a full time position whose primary purpose is to on-board participants to software development roles upon completing the program.

- **Drs. Sudhir Goel** and **Iwan Elstak** are publishing a paper entitled *"Applications of patterns and arithmetic series that sum to N (to the power k)"* in the journal *"MathAMATTYC Educator"*. In this paper, they proved that every power of natural numbers can be written as a sum of consecutive odd numbers.

- The Department of Mathematics and Computer Science at Valdosta State University and Azalea Health partnered once again to host **Hackathon** on Feb. 28, 2015. The second annual event kicked off with the student competitors receiving their problem domain. Working in teams of two to five, they then spent the next eight hours developing he appropriate software solution. Hackathon was created in 2014. It is a software and design implementation competition that offers college and high school students across South Georgia the opportunity to showcase their computer science skills.

- The Department of Mathematics and Computer Science at Valdosta State University hosted a **summer computing camp** for rising 4th-7th grade students during June 22-26, 2015. 17 students attended this camp where they were introduced to computing

Upcoming**EVENTS**

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and programming in a fun and engaging way. They created and programmed their own robots as well as Android apps. More information about future offerings of the camp is available at **http://cscamp.valdosta.edu/**

- **Dr. Jemal Mohammed-Awel** gave two invited paper presentations, one during the **AMS Southeastern Sectional Meeting**, sponsored by The University of Alabama in Huntsville during March 2015, and a second one at the **35th Southeastern Atlantic Regional Conference on Differential Equations** sponsored by The University of North Carolina in Greensboro during October 2015.

- **Drs. Shaun Ault** and **Sudhir Goel** received an **Affordable Learning Georgia** grant for $10,800 to develop a no-cost option for MATH 2261 (Calculus I). Ault and Goel worked over Summer 2015 to locate Open Educational Resources (OER) and write supplementary materials for the course, which uses a free textbook and a free online homework delivery system called WeBWorK. Ault and Goel each taught a no-cost section of MATH2261 in Fall 2015, and here are currently five no-cost sections being run in Spring 2016 (taught by Ault and Vickie Graham). If the experiment proves to be a success, all sections of 2261 could become no cost! There are currently plans in the works to develop a no-cost option for MATH 2262 (Calculus II) as well.

- **Dr. José Vélez** published a joint–work article entitled *"String and Band Complexes over Certain Algebra of Dihedral Type"* in **Algebras and Representation Theory** during November 2015. Dr. Vélez presented this article at the **XX Colombian Congress of Mathematics** held in Manizales, Colombia during July 2015 and at the **XXVIIth Meeting on Representation Theory of Algebras** held in Sherbrooke, Quebec, Canada during September 2015. Dr. Vélez was a coordinator during the **XXXth Iberoamerican Mathematics Olympiad** celebrated in Mayaguez, Puerto Rico during November 2015. This event gathered high school students from more than twenty countries including Spain, Portugal and Mozambique.

- The **20th Annual Sonia Kovalevsky Day** was held at Valdosta State University on Thursday, April 23, from 8:30 a.m. to 2 p.m. in the Student Union. SK Day is a project that seeks to encourage high school women to pursue the study of mathematics and prepare for possible careers in mathematics related fields. The event is named in honor of Sonia Kovalevsky, a Russian mathematician and the first woman to earn a doctorate in mathematics. According to co-directors, **Drs. Denise Reid** and **Sandy Trowell**, this year's SK Day was made possible by the support of the VSU Department of Mathematics and Computer Science, Publix, VSU Office of Admissions, VSU Alumni Association, VSU Foundation, Walmart, Texas Instruments, VSU Bookstore, McGraw- Hill Education, Wiley Publishing, and Pearson Higher Education. The day included four workshops given by **Drs. Ben Wescoatt**, **Martha Leake**, **Krishnendu Roy**, and **Jenny Vu**. Participants got to visit the VSU Planetarium as well as see the University's newest 3-D printer. **Dr. Amy McKenna**, Associate Scholar Scientist at the Ion Cyclotron Resonance User Facility for Environmental & Petrochemical Applications at the National High Magnetic Field Laboratory at FSU was the career speaker for the event. The day also included a mathematics contest and lunch at VSU's Palms Dining Center. Ninety high school students and teachers from 14 area high schools attended the event.

OUR EXPERIENCE IN...

13th International Conference on Scientific Computing in Las Vegas, Nevada

BY SHERRI L BURKS

You may have heard the old adage to "never say never," but I recently experienced just that. I never thought I'd get to see the Grand Canyon from the air. I never visualized myself in Las Vegas among the bright lights and gaming tables. I also never thought I'd be a published presenter in an international computer science conference. But thanks to Drs. Wang and Harrell at Valdosta State University, all of that just happened to me this past July.

In Dr. Wang's Operations Research course, I conducted research on ways to initialize a data clustering algorithm called k-means. My research paper "On Initial Effects of the k-Means Clustering" was selected to be published and presented at the 13th International Conference on Scientific Computing by the 2015 WORLDCOMP World Congress in Computer Science, Computer Engineering and Applied Computing. The conference was held in Las Vegas, at the Monte Carlo Casino, and the featured keynote presentations were in the famous Blue Man Group Theater. I admit, I was a bit intimidated when I saw the lineup of advanced topics being presented by so many esteemed individuals, but I soon realized I had already been exposed to many of the research concepts and was able to hold my own among them. Once the presentations were over one evening, I was able to catch a quick selfie with Blue Man Group. A lot of time and work was invested in this project, but it paid off. That was certainly no gamble, and neither was enrolling in the Computer Science curriculum at VSU. Thanks to Dr. Wang, Dr. Harrell, and the VSU Math and Computer Science Department, my education went well beyond the classroom. I will forever be grateful to them for the experience and lifelong memory.

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ATTENTION FACULTY, STAFF, AND STUDENTS
Please send articles of experiences that you want to share with us to: **mathcs@valdosta.edu**

THE MATH PROBLEM CORNER

My daughter is twice as old as my son and half as old as I am. In twenty-two years my son will be half my age. How old is my daughter?

SOLUTION:

Let us assume my daughter is age x. We are told my daughter is twice as old as my son, so that my son must be age x/2. We are also told that I am twice as old as my daughter so my age is 2x. In 22 years time my son will be (x/2 + 22) and I will be (2x + 22). Since he will be half of my age at that time,

$$x/2 + 22 = 1/2\ (2x+22)$$

Multiplying both sides by 2

$$x + 44 = 2x + 22$$

or

$$x = 22$$

My daughter is 22 years old.

MATHEMATICA TIP... JULIA SETS!

JuliaSetPlot[0.365 - 0.37 I, PlotLegends -> Automatic]
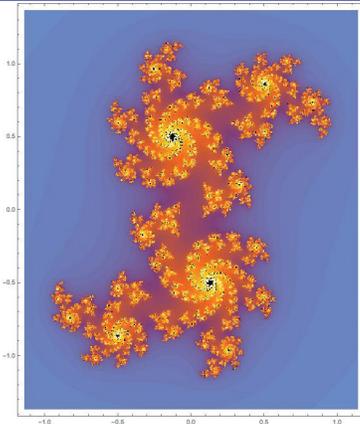
Meet Dr. Radu Paul Mihail

Dr. Mihail is an Assistant Professor of Computer Science at Valdosta State University. He received his B.S. in Computer Science from Eastern Kentucky University in 2009 and his Ph.D. in Computer Science from the University of Kentucky in 2014. Dr. Mihail's research interests include computational vision and computer science education. In the area of computational vision problems, he is currently working in the domain of live outdoor image analysis. He recently co-authored and published a paper on camera calibration from natural optic phenomena. In computer science education, Dr. Mihail is interested in how to design effective laboratory environments for introductory programming courses. His hobbies include travel, camping, fishing and automotive repair.

Meet Dr. Anarag Dasgupta

Dr. Anurag Dasgupta joined the VSU Department of Mathematics and Computer Science in the fall of 2015. He earned his MS and PhD in Computer Science from The University of Iowa. Prior to joining VSU, Dr. Dasgupta was an Assistant Professor of Computer Science at Edinboro University of Pennsylvania. Previously, he also taught at the University of Northern Colorado and the University of Wisconsin-Platteville as a visiting faculty.

Dr. Dasgupta's primary research interests lie in stabilization and fault tolerance in distributed systems. He has also worked on algorithms for system availability. Stabilization research has potential applications in varied fields - e.g., sensor networks, peer-to-peer networks, mobile computing, topology update, clock synchronization, and many others.

A Special Thanks To Our Donors!

The Elizabeth Joy Lohmar Scholarship Fund for Mathematics

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David W. Boyd	Janice F. Lowe
Mary Kay Corbitt	Kathleen L. McGinnis
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Gregory K. Harrell	
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2015
OUTSTANDING ALUMNI

The Department of Mathematics & Computer Science is very proud to recognize Dr. Parmy (Singh) Cobb as our 2015 Outstanding Alumni. Dr. Cobb received her B.A. in Mathematics in 1999. She graduated with Honors and Magna Cum Laude. After leaving VSU, Dr. Cobb attended Auburn University and earned her Masters of Applied Math. In 2003 she was the first Ph. D. graduate in Mathematics at Baylor University.

Parmy has a long list of academic accomplishments. She was the Baylor University Graduate Student of the Year in 2003. During her time as a faculty member at Gulf Coast State College, she was co-advisor for the Phi Theta Kappa honor society and was also selected as Rookie of the Year in 2005. That year she was chosen as the Phi Kappa Phi Outstanding Alumni for VSU.

Dr. Cobb's accomplishments are not limited to her work in academia. She also serves the people of Panama City Beach, Florida, where she lives with her husband Tory and two children, Lily and Nate. She has served as a classroom aide at Rising Leaders Academy, and sponsors children in need of daily school lunches.

She is also active in Church Women's Ministry, serves as a Sunday school teacher, and is a member of the Christian Education Committee at her church in Panama City Beach.

Dr. Cobb is currently the Mathematics Director at the Florida State University Panama City campus.

ATTENTION ALUMNI:
Please send your professional and personal news to mathcs@valdosta.edu for inclusion in the alumni section of the newsletter.