to mimic the transition state. They have three components: an N-adenosyl methionine (NAM), a peptide derived from N-terminal protein substrate, and a linker. We adopted a fluorescence-based assay to evaluate the activities of bisubstrate analogs. We have successfully synthesized a series of bisubstrate analogues and determined their inhibitory activities. Among them, SPK-NAM and SPKR-NAM have an IC_{50} of 51.9 and 13.4 uM, respectively. As negative controls, both NAM-triazole and triazole-peptide did not show any significant inhibition at 100 uM. We have synthesized the first NRMT inhibitors using a mechanism-based strategy. These inhibitors showed inhibitory activities in the micromolar range. These results suggest the possibility of developing potent NRMT inhibitors using a bisubstrate approach.

Computer Science

ADOPTING SECURITY ASPECTS INTO THE SOFTWARE DEVELOPMENT LIFE CYCLE. Yen-Hung Hu, Department of Computer Science, Hampton University, Hampton, VA 23608. Our research has found that security vulnerabilities exist in most undergraduate capstone and programming projects that are mainly caused by ignorance of security aspects in coding. This raised our concern about adopting security aspects into the teaching of the software development life cycle in undergraduate software engineering and programming courses. To emphasize this concern, we developed a security assessment table to identify vulnerabilities and security breaches in such projects. The assessment table consists of 13 critical questions which are derived from several prominent institutions including Oracle, CERT, and CMU. We also adopt three security characteristics: confidentiality, integrity, and availability, from the McCumber Cube framework, as the measurement criteria for each critical question in the assessment table. For every captured security vulnerability and breach, we identify solutions that follow Oracle and other secure coding guidelines.

FROM SCRATCH TO JAVA. Bruce Chittenden, Department of Computer Science, Hampton University, Hampton VA. Our high schools are failing us because students entering college today have few courses in Computer Science. Many students have no idea what Computer Science is about or think Computer Science is about creating video games. Most students also lack critical thinking and problem solving skills which are essential to Computer Science. For the past three years, we have used the Scratch programming language in an entry-level course to introduce students with no background to Computer Science. Scratch is a 2-dimensional drag-and-drop Lego-like programming language from the Lifelong Kindergarten Group at MIT. Students spend a semester learning the concepts of programming languages through Scratch. The final project for this course is to create a Scratch Program that implements a Children's Story. This year we created a series of fifteen labs that demonstrated most of the programming constructs of the C-based Programming Languages (specifically, Java). The labs are structured so that the student first writes the program in Scratch, make sure it works, and then writes the same program again in the Java. Since Scratch gives a visual representation of the program, students can more easily visualize the program when implementing it in Java. The titles of the fifteen labs are listed below to show the various programming constructs that are presented in this approach: "Hello World!",

"Reading Keyboard Input", "Addition and Subtraction", "Multiplication and Division", "If", "If Else", "Nested If", "Logical Operators", "Random Numbers", "For Loop", "While Loop", "Nested Loop", "Function Calls", "ArrayLists", and "Arrays."

Education

THE SPEED EXHIBITION. C. Mills[1], E. G. Maurakis[2], R. Conti[2], L. Hughes[2], & D. Hagan[2], [1]College of William & Mary, Williamsburg VA 23187 and [2]Science Museum of Virginia, Richmond VA 23220. Objectives of the 10,000 ft[2] exhibition gallery project include creating interactive exhibit experiences to challenge visitor's assumptions, changing their perceptions about the universe and themselves, gaining fascinating scientific insight, and reflecting on their own or with others so they are better prepared to have an informed opinion of the world around them. The SR-71 Blackbird aircraft, suspended over the exhibition, will serve as the icon for the Speed exhibition. Front-end evaluation informed SMV personnel of the understanding level of the concept of speed by visitors as well as strategies to convey topics. Most visitors associated the concept of speed with fast change over time, and did not consider evolution and geologic processes as such. However, after being presented the concept of change over long periods of time, visitors acknowledged that both evolution and geologic processes fit the concept of speed. Over 40 interactive exhibits have been designed to create an atmosphere of wonder by communicating STEM concepts in ways that are insightful and assured as well as surprising and quirky. The overarching theme is change over time, a perspective crucial for understanding scientific concepts – from the speeds of light and sound, expansion of the universe, NASCAR racing vehicles, technology, telecommunications, robotics, and growths in human population, plants, and social media to geological changes, evolution, and speciation.

PROMISING PARTNERSHIPS AND PEDAGOGY FOR AFTER-SCHOOL SCIENCE. Charles L. English, Dir. Playful Learning and Inquiry, Science Museum of Virginia, Richmond VA 23220. The Science Museum of Virginia is a center for scientific investigation, building curious minds, inspiring people to dig further into science, or STEM, and how it impacts our daily lives. The Museum's Mission – Inspiring Virginians to enrich their lives through science – is designed to engage inquiring minds through rich experiences. The social climate has been slowly shifting within the past few years – to address an area that does not get enough attention – to inspire the minds of youth that may otherwise turn away from a scientific endeavor – to grow a STEM Pipeline towards STEM Careers. To this end the Science Museum is evolving. Our goal is not to be a repository for historic science content as much as to evoke inspiration, enthusiasm, and exploration. Learn about the outreach program successes, areas of need, uncovering stories and experiences as we all look to advance our learning community, especially in an informal, after-school setting. Our current partners include Boys & Girls Clubs of Metro Richmond, Higher Achievement, YMCA, 4-H, Communities in Schools, Richmond Public Schools and the Virginia Library Association. The pedagogical approach is aligned with project based or problem based learning which encourages youth to use their own voice and choice in solving task given to them through effective use and implementation of digital media.