Thank you – from our students
Thank you Systems UTA’s (James/Eric/Harrison)

...for checking Piazza more times and responding faster than I realized was humanly possible.

Christy Coghlan
Thank you Ryan Whitcomb

I want to thank my good friend Ryan for being there for me to talk to and get emotional support from during the rough times of my semester.

Jinwoo Yom
Thank you Margaret Ellis

She was an amazing mentor, role model, professor, and person. She wants the best for her students, pushes them to work hard, and helps them believe in themselves and their skills.

Alexandra LaMontagne
Going "above and beyond" is an understatement to the time (outside of hours) Nick has put in to make sure students succeed in not just the classes he TA's for, but others as well.

Ryan Butterfield
Thank you Greg Farris

He's the go-to guy for any sort of question (and humor...)

Christy Coghlan
Thank you Dr. Osman Balci

I had several medical complications last semester, and Dr. Balci was extraordinarily understanding. He even took the time to talk to me at length about my personal struggles, extending his help and providing a source of comfort. I know for a fact Dr. Balci cares about the students he teaches, and he gives each of us plenty of opportunities to become stand-out engineers. I really appreciated the extra time he gave me, and that he took the time to talk to me about what I was going through. I won't forget that.

Jessica Sun
Thank you Dr. Back

I did programming team last fall and it really helped me by practicing tough programming challenges. I'd like to thank Dr. Back for taking time out of his schedule during the week and weekends to help us become better programmers and learn more about computer science and for also saving my meal plan by providing pizza for the weekend challenges.

Kyle Long
Thank you Lauren Cahill

For always trying to be helpful and understanding on difficult programs. When she was unsure, she would go above and beyond to make sure she could figure it out and provide you with an explanation.

Emily Croxall
Thank you All the TA’s

...for working tirelessly for the development of aspiring engineers while getting little recognition for their efforts.

Patrick Rodgers
Thank you my TA’s

They helped me a lot on my projects and my labs.

Simon
Thank you Dr. Cliff Shaffer

He is the first Computer Science professor I have had that challenged me in an interesting way and made me excited enough about Computer Science that I switched my major from Aerospace Engineering to Computer Science.

Jason Davis
Thank you Dr. Back

I transferred into C.S. from the Chemical Engineering department and I can honestly say in my whole time at Virginia Tech I did not think that I would ever meet as dedicated a professor as Dr. Durrill. Well, I was wrong. Professor Back has shown time and time again his dedication to us students by his almost unlimited availability, either through email or in person, and his amazing ability to understand your code and issue within fractions of the time it would take most other people. On top of all this his empathy makes him very approachable and he makes you feel like you are not being looked down upon or judged for the simplest of questions. I feel my encounters with Professor Back have been invaluable in teaching me how to code and analyze problems. So I would like to thank him with all my heart for his dedication and commitment to Virginia Tech and its students.

Aaron Rivenberg
Although Rich Charles is not a professor, he has enabled a spectacular amount of learning this semester. This is his first semester teaching, and it was immediately apparent on his first day of teaching that he was not only going to teach us about SQL Databases, but ensure that we had as much support as we needed throughout the course. During class he has very high energy and will conform his examples and the way he teaches to best help our understanding. During the course of this year, it seemed like his goal was not to just run an SQL course, but to make sure that we learned a skill (I feel like I have come miles with SQL). After taking his course, I can now say that for the first time since I came to Tech, I actually look forward to going to lectures for a class. Thanks Rich!

David Allada
Thank you Ms. Ellis

I took CS 2114 with Professor Ellis and at the time I had no prior experience with data structures, especially linked based data structures with nodes. At times it was very confusing. She was very helpful and patient in office hours as I learned about traversing nodes. It really helped build my confidence in solving difficult problems as I continue to learn more about computer science and for that I am very thankful for her help.

Kyle Long
Thank you Libby Bradford

For being part of the reason I came to VT, for being wonderful, and for always giving me chocolate :)

Christy Coghlan
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She was my mentor at VT.

Faiz Abidi
I want to thank Dr. Cameron for helping me understand the best ways to succeed as a Ph.D. student at VT and taking hours of his time just to tell me that he and other faculty are committed to my success. His guidance revived my confidence in my own ability to succeed and comforted me when I was uncertain of my future as a Ph.D. student.

*Thomas Lux*
Thank you Clifford Shaffer

I'd like to thank you so much for all the recommendation letters you have sent for me this year. I'd like to thank you for all the advice and all the lessons I have learned from you. Thank you!

Sally Hamouda
I came back to Virginia Tech this semester with a conflict with a transfer credit that would have delayed my graduation by a semester. I felt incredibly frustrated and hopeless in this situation which affected my morale and my academics. Then I found solace when I went to Ms. Rupert for help. She didn't just help me solve this problem but she eased my mind with the whole situation with this attitude like "You are totally fine. Don't worry." She really helped me survive this semester and I will always remember her as my totally awesome CS advisor.

Paco Gallegos
Thank you so much for all the recommendation letters you have sent for me! I am genuinely grateful for your help. Thank you!

Sally Hamouda
Thank you Lorenzo Raras

...for being the best mentor ever!!!!

Julia Nguyen
Thank you Professor Back

As the coach of Programming Team, Professor Back has made a huge impact on hundreds of students. Whether he's making a hilarious joke on piazza or helping a student learn a new technique, Professor Back is there at any hour of the day (or night). Professor Back helped create and maintain the PCS system, which has graded over 7,300 submissions from 150+ students. Thanks for being a great coach Professor Back, and good luck next year!

Peter Steele
Thank you Brian Clarke

I want to thank Brian because he helped me outside of his office hours. He also gave me some advice on what class I should take. He is my best personal mentor!

Jisheng Huang
Thank you Professor Harrison

Professor Harrison has been an amazing mentor to me over the past year. He is always willing to take time out of his day to talk to me, and our conversations have both challenged me and encouraged me to be a better student, designer and person. If I had not taken his Intro to HCI class last spring, I do not think that I would be pursuing graduate school or have discovered a field that fits me so perfectly. Thank you for all you do!

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I would like to thank Sharon for helping me transfer courses and navigate the process of obtaining a secondary master's degree and Ph.D.

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Thank you Dr. Ali R. Butt

For being an incredible mentor and advisor, for pushing me through and for helping me reach my goals.

Sangeetha
Thank you Peter Steele

... for organizing programming team meetings and giving lectures for said meetings. I probably learned more material from him then I have from most of my other classes.

Jonathon Marks
Thank you Eric Williamson

- Handles all of my "which classes should I take"/"when do I graduate" fears
- Always has candy or sweets
- Being (one of the) best unofficial official mentors

Christy Coghlan
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She supported me through my highs and the lows at Virginia Tech.

Faiz Abidi
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Eric has helped me on my projects several times outside his office hours.

Dela Anthonio
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I would like to thank Prof. Sedki Raid the director of VT-MENA program for his support and care for all VT-MENA students and special thanks from me for his effort to help me when needed, and his valuable advice.

Hanaa Torkey
Thank you Greg Farris

He's not my assigned advisor, but I've been to see him a few times, and every time he was very helpful and reassuring, and I feel like he's helped me make better decisions for my future that I couldn't have made without his guidance.

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...for putting in countless hours to teach people programming strategies and giving programming team lectures.

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Eric has been an amazing mentor to me this past semester. He has stayed late hours with me in the lounge helping with homework and tutoring me for tests. He was always incredibly patient and understanding. He helped me come to understand CS as a whole more and helped me realize that there were paths in CS that I would enjoy taking. He even attempted to get me an internship this summer by forwarding my resume on to people! I truly wish I had gotten to know him earlier in my college career both as a friend and a mentor.

Julia Evans
Thank you Taylor Rydahl

He was the most amazing friend ever since the first day I came to VT. I don't think I would have chosen VT without him. I will miss him.

Patrick Sullivan
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...for giving a wonderful introduction into the world of bioinformatics and research.

Christy Coghlanc
Thank you Dr. Nicholas Polys

He was my advisor constantly supporting me through my Master's.

Faiz Abidi
Towards Usable Security: Interactive Visualization of High-Dimensional Data for Program Anomaly Detection

INTRODUCTION

Motivation
- The automatic detection of program anomalies needs to be followed by manual security analysis in order to prevent false positives.
- There has not been systematic research on how to design usable tools for security analysts to effectively conduct the manual analysis.

Research Goal
- The specific goal of this project is to design an interactive visualization tool for a data-driven program anomaly detection system.

Challenges
- The challenge presented is how to build a visualization tool that preserves visualization of multidimensional points while reducing the dimensions.
- The figures below are data points that represent one dimension but hide in higher dimensions. Least square distance is calculated on these points to find the best-fit plane.

Potential Solutions:
- Dimensionality Reduction Tools
- Feature Selection
- Principal Component Analysis

PLANNED WORK

Conclusion

Anomaly detection systems are highly constrained. We will continue to design an interactive visualization tool.
Project and Task Management as a Meta-tool of Personal Information

Rachel Kohler
Dr. M. Pérez-Quiñones (advisor)

The project addresses information fragmentation by integrating independent existing tools and managing archiving and maintenance architecture.

Independent tools are well suited to specific contexts and allow us to operate as a specific task. Our approach allows for the controllable use of these independent tools.

However, these individual tools often contribute to information fragmentation and are not conducive to project management. To get work done, we often need an integration of multiple tools to ensure effective and complete projects. Our main tool allows integration of these sources, while exploring multiple approaches to project management.

Prior Work

Task management should be grouped into task hierarchies rather than individual tasks to reduce switching time and metatask costs.

"Fidelity for all content" is an important consideration in designing and implementing a project manager.

Individual users can prioritize their own work goals. Therefore, a task project management system should allow users to prioritize tasks.

My contribution has been to design the interaction and interface that integrates email into an existing project manager.

I reviewed and analyzed the literature on project and task management tools.

I further enhanced my HTML and Bootstrap skills while learning PHP and MySQL.

While new applications, tools, and devices often increase information fragmentation, this does not have to be the case. Some tools and techniques of PIM promote information integration, which can simplify PIM activities and have benefits across the lifecycle of personal information.

Project view integrates information from to-do email and files for a particular project. This view allows users to focus on a single project with all parts of a project.
Architecture

The architecture of this project is comprised of two parts. First, in this section, a description of the GameObjects is given. A GameObject is a hierarchical container. Second, the necessary scripts are described. This is typical of any Unity project. Every object in the application is a GameObject. Therefore, the C# objects will be converted to GameObjects before being rendered.
MULTITHREADING SUPPORT FOR PINTOS

Motivation

Pintos, becoming an essential part of modern computer applications, has evolved to simplify hardware portability. While the current pre-emptive thread implementation does not provide the expected level of thread multiplexing, it needed to be replaced with a new multithreaded implementation.

Overview

ReDesign is a software server that provides a distributed service. It has been found that, when the distributed system's performance is limited by the network, a service that runs on many threads can provide a better performance. The threads are used for multiple tasks, each one running on a separate thread. The control flow is divided into smaller tasks, each one running on a separate thread. This allows for better parallelism and scalability.

Results

- Performance analysis
- Thread efficiency
- Resource utilization

Conclusion

Our implementation was successful. Overloading the server's resources by introducing more threads did not have a significant impact on performance. Our implementation solves a problem that traditional approach cannot handle. The main advantage of our approach is the ability to handle more concurrent requests without degrading the performance. The overhead of context switching is reduced, allowing for more efficient resource utilization.

Testing

The server was implemented on a cluster of computers, each running a different version of Pintos. The server was tested under various load conditions to measure its performance. The results showed that the server was able to handle a high number of concurrent requests without degrading the performance.
From the faculty and staff of the CS Department...

Congratulations and Best Wishes to all of our graduates!