

# 2017

## Software Engineering Showcase



UNIVERSITY OF  
CANTERBURY

*Te Whare Wānanga o Waitaha*  
CHRISTCHURCH NEW ZEALAND

Science & Technology  
University of Canterbury

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# WELCOME MESSAGE

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Dear students, staff, family members, industry representatives, and members of the wider community,

## Welcome to Software Engineering Showcase 2017!

Towards the end of this academic year, we are again excited to celebrate the hard work and achievements of our project course (SENG302) students. In SENG302, students spend a year working in a team within the larger SENG302 “organisation”, to develop a substantive piece of software. This is much harder than one might imagine and the lessons learnt through experience cannot simply be taught in lecture-based courses. They learn not only quantitative (technical) skills, but also the important qualitative (“soft”) skills.

SENG302 has quite a high workload, both for students and staff. This year, as in any other year, the students went through a rollercoaster of emotions as they critically assessed the situations and their own abilities, faced failures, became more self-aware, pushed past their limits, brought together all their learning from other courses to solve problems, and increased confidence in their own abilities.

We are very proud of our students’ accomplishments this year. We are very pleased that all of you are here with us to be a part of this celebration. We are also grateful for your support of our students at this event, and for some of you, right throughout the year. This includes our sponsors and industry representatives. Learning is a community activity and without your support, this learning would be limited.

So, thank you.

We hope you enjoy the day and get to talk with each of the students. They are our future!

A handwritten signature in black ink, appearing to read 'Moffat Mathews', written over a horizontal line.

Moffat Mathews

On behalf of the SENG302 teaching team:

Thomas Young, Andrew Curtis-Black, Elora Walmisley, Isabelle Taylor, Jack Crouchley, Patricia de Andrade



# ABOUT SE SHOWCASE

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To understand the history of the Software Engineering Showcase, one needs to know a little bit about the history of the project course. The third year project course has been taught under various course codes using various methods over the years. However, a year-long project was taught at CSSE for a few decades. Historically, most of the focus in the course was on the end product; the intent was that focusing on the end result would build and test the technical performance of the team. The side effect of this unfortunately, was that in reality, it meant that the quality of the product became more important than the learning gained by the team in the process. It promoted “hero culture”, where one or a few developers pulled the project through to completion by doing a heroic effort. Students who were less confident in their abilities did not step up and consequently learn, but instead they let those who seemed confident do the work. In terms of presentations/demos, it meant that students had only one presentation at the end of the year where the team presented their product to the class.

Over the years, the field of software engineering grew and more process-oriented frameworks and methods were being used in industry to develop software. As in other fields, experts (software engineers in the field and occupational psychologists) discovered the importance of qualitative (“soft”) skills in software development projects. Various studies into project management highlighted the significance of human factors in the failure or success of software projects. This project course changed to include these aspects. The course moved from more of an RUP process to spiral (with iterations) to XP. With each change, more of the process and team skills were brought into the project course.

Today, SENG302 students use the Scrum framework to develop software in their teams. The emphasis now is not on the technical skills, which are still crucial for success in this course and are taught and assessed in other courses, but on the skills required to build “larger” pieces of software over a longer period within a team of developers in the context of an organisation with stakeholders. Students have to learn to communicate and negotiate with people in various contexts (e.g. technical, business, and laypeople). They also need to understand the business’ strategy and help with prioritising and grooming the backlog. At every review (at the end of each sprint), teams do a technical presentation and demo their product to the rest of the class who actively provide feedback. Retrospectives at the end of each sprint enable students to reflect and make changes to continuously improve. Apart from the usual software deliverables each sprint, students also have to do in-depth self-reflections and provide feedback for all the peers in their team. The emphasis is on learning. Students learn to embrace failure and use it as a stepping-stone towards learning.

In 2006, Moffat Mathews with Neville Churcher and Warwick Irwin officially changed the final presentation to the Software Engineering Showcase. SE Showcase has had several changes over the years to reflect the purpose and goals of the presentations. The SE Showcase is now a public event, i.e. the teams need to communicate to lay and technical people. The SE Showcase is not a technical presentation (like at the reviews), neither is it a marketing presentation. At this presentation, the students present to the wider community (wider set of stakeholders), letting them know what they achieved in items they were tasked with over the year and what they learnt. Their achievements are not just the product, but their “personal portfolio” of skills required to work in a team. It is also a celebration of the fairly intense work and learning that each student goes through over the year. This year, we have shortened the presentations to make room for a session where the audience can mingle with the students, try out their products, and talk with them about their experiences.

From 2016 onwards, the Software Engineering Showcase also incorporated the 3<sup>rd</sup> Pro BE Honours project student presentations. 3<sup>rd</sup> Pro projects may either be done individually or as a team and the presentations reflect that.

# SCHEDULE

Date: Friday 13 October 2017.

Where: Bentley's UCSA Events Centre (off Ilam Rd), University of Canterbury

Chair: Will Richardson

Time	Details
08:30 - 0900	Coffee and tea served
0900 - 0930	Introduction: Matthias Galster
0930 - 0945	This year's project: Thomas Young
0945 - 0955	Team RaceScape
1000 - 1010	Nauti Buoys
1015 - 1025	Burgers and Boats
1030 - 1040	Full Mast
1045 - 1055	Party Parrots
1100 - 1110	Zaffre Tides
1115 - 1125	SeaBiscuit
1130 - 1140	Travelling Sailsmen
1145 - 1215	Closing
12:15 - 1400	Lunch and interactive session

*Please note that this is the intended schedule. The start/end times might vary depending on various factors, such as the actual length of a presentation.*

## Photos/Video

Photos and/or video will be taken at this event. The official photos/videos will only be used for promoting the university and courses. Please let the event co-ordinator know if you do not want your photo taken so that the photographers can attempt to blur your face in the final product.

# THIS YEAR'S PROJECT

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## Product: Racevision and Game-X

This year's project was inspired by the 35th staging of The America's Cup 2017 yacht race. It was held in the Great Sound in Bermuda from the 17<sup>th</sup> to the 26<sup>th</sup> of June. Emirates Team New Zealand won by a score of 7 to 1 over Oracle Team USA (the defenders). Go Team New Zealand!

SENG302 student teams were asked to create an application that took real America's Cup data from a server and provided visualisations in real time for various personas (including a novice and an expert). By the beginning of the race, all SENG302 teams were able to complete many of the stories on the backlog. However, there was a surprise in store for the teams. A pivot in the project was introduced for the second semester, moving from a live visualizer to a sailing game. This pivot tested the agility and flexibility of the teams and the extensibility of their codebase.

The project was run using the Scrum framework with many of the XP processes. There were a few constraints, such as the language (Java), sourcecode control (Git), and a prioritised backlog. Towards the end of the year, teams were allowed to contribute significantly to the backlog. Some of the unique features of the products reflect this.

## ABSTRACTS

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### Team RaceScape

MICHAEL COWIE, LIAM BECKETT, JORDAN BLACKBOURN, CALLUM GUBB, ANGUS SCHULER, WALLACE SHARPE-DAVIDSON, SAMUEL STRATTON

**RACESCAPE** is a yacht racing game with a twist.

Developed by **TEAM RACESCAPE**, the self-titled game contains semi realistic yacht racing, initially inspired by this year's Americas Cup event.



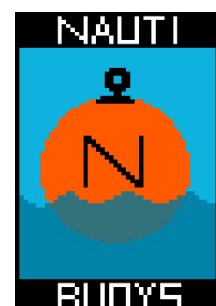
This LAN multiplier game contains various maps for users to race on using XBOX controllers or a keyboard and mouse. **RACESCAPE** is a retro styled 2D game with 3D simulated pixilated graphics. This game features semi realistic yacht controls and features with Velocity Made Good, Tacking and Gybing, Sails in / out, Lay lines and a realistic wind based speed system.

### Nauti Buoys

SAM BEESTON, ANTON JELINEK, DAVID DONG HUN LEE, SUNGUIN PENG, ALICE HONGTING QIU, CALLUM SLAVEN, JUSTIN THORBY

In the ever-growing market of nostalgia gaming, **HIGH SEAS** provides a unique experience for players to remember the glory days.

As a leader in the innovative field of digital yacht racing, accompanied by a retro visual and sound design, High Seas sends users back to the golden age of 8 and 16 bit gaming. Players can enjoy four unique game modes to challenge their friends and develop their abilities.





Highlights include:

- Gate-passing challenge mode
- Arcade style racing mode
- High intensity, last man standing battle mode
- Game changing power-ups
- Retro visual and sound design

## Burgers and Boats

HAMISH BALL, CONNOR TAYLOR BROWN, FRASIER COPE, JOSEPH GARDNER JESSICA SNYDER, DAVID ZICONG WU, FAN-WU YANG

When people ask the question “*what will be the next big craze*” the answer on everyone’s lips should be **BURGERS & BOATS**’ new hit **SMOOTH SAILING**.

This new interactive experience has players jettisoned into a world custom built to provide a fun and exhilarating boat racing experience. Players can opt to race across maps designed to test their endurance, stamina and dedication or challenge rivals in head to head short arcade like competitions. With **SMOOTHING SAILING**’s full 3D display players will be blown away by how stunning and fun racing a boat in 2017 can be.



**BURGERS AND BOATS** are also known for their other smash hit **RACEVISION**, which took the racing community by storm in June during the Americas Cup. This detailed race view provided a fully functioning racing experience that let its views watch the Americas Cup races live without interruption.

## Full Mast

SAM BATES, TIM GARROD, STEFAN HALL, OLLIE ROBB, MATT SIMPSON, ABEL SVOBODA, JONATHAN TRAVAILLE

**SAILIO** is a marginally multiplayer online action game created by the hard working dev team at **FULL MAST**. Possibly up to 20 players can control a boat in a map representing a racecourse minus the marks. The goal is to gain as much mass as possible by consuming other more inferior boats.



The name comes from sheets of material typically used on non-mechanical boats (sails). **SAILIO** started out as an Americas Cup visualizer, after which it was pivoted into a boat racing game. In order to make the game fun, it was decided to once again pivot the application into the masterpiece it is today.

## Party Parrots

KUSAL EKANAYAKE, PETER GALLOWAY, CALUM IRWIN, ALISTAIR MCINTYRE, WILLIAM MUIR, MICHAEL RAUSCH, ZHI TAN, HAOMING YIN

**PARTY PARROTS AT SEA** is a competitive, multi-platform game designed for the next generation of gamers.

**PP-AT-C** is an accurate and immersive simulation of real world sailing built using the powerful JavaFX engine. It combines the tension and thrill of competitive sailing with the game play of Mario Kart and the strategy of Connect Four.



The development team behind the game has over one hundred years of peer review experience and we guarantee that Party Parrots at Sea will change the way you see sailing.

The game features lush 3D environments, in-game chat, a variety of challenging maps, a range of exciting game mechanics, and over four boats to choose from.

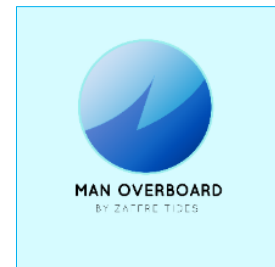


# Zaffre Tides

ALEXANDER BULL, ROBIN CHARLETT-GREEN, MATT GOODSON, KE HE, ISABELLA JOE, MIN-SU LEE, JESSICA ROBERTSON, PANG SUWANAPOSEE

**MAN OVERBOARD** is an online multiplayer sailboat racing game.

Players must sail their boat around the course as fast as possible while avoiding obstacles and other competitors. Real boat and wind data is used to provide an authentic sailing experience. This experience is augmented by arcade game elements including a player health system, collision physics, powerups, and more. Sail around all the marks first to win the race, but keep your crewmembers on board.



*Who knows what's lurking in these waters...*

# SeaBiscuit

MATTHEW BOOTE, MEGAN CHU, TYLER HOLLAND, MATTHEW JENSEN, DAVID KING, GRANT McEWAN, ROBBIE PHEMISTER, LIZ RICHARDSON, CHRIS WALKER

Our application, **AGE OF SAILING**, steps above and beyond the rest by bringing an exciting setting and multiple playable characters to the game. Choose one of many ancient gods and conquer the seas -as well as your opponents- as you battle the wind and win races in our exciting new multi-player game. With sailing mechanics taken from real world boats, tested on the 2017 Americas Cup race data, and magical abilities from the minds of our developers, our game offers the best of both worlds!



We're a wonderful team of 9 people that take pride in our work and look to deliver the best products by placing the customers input first and foremost in our development strategy. We guarantee that with close communication and the talent of our diverse and accomplished staff, you will end up with a product that utilises the most modern methodologies to create a beautiful and cohesive application.

# Travelling Sailmen

LOUIS ATTENBOROUGH, CLAIRE BARNABY, RAY AN-TZE CHEN, DEVIN DAVIES, CHRISTOPHER DONOVAN, SAMUEL HOOKER, GEMMA LAMONT, MICHAEL TROTTER, SOPHIE WALTON-SMITH

The **TRAVELLING SAILMEN** offer a unique gaming experience and race visualizer.

Our game **OBJECTIVE SEA** is visually appealing and contains many exciting features such as original music and sounds, multiple practice modes and a party mode! The party mode is a unique feature, one which brings the sailing into your hands via your mobile device, so you can now compete on the big screen against all your friends for the ultimate user experience.



For the less hands on approach, our race visualizer, RaceVision.pro, projects sailing races in real time whilst adding useful and informative annotations.

So, whether you're a sailor or a spectator, we have the app for you!



# THANKS TO OUR SPONSORS!

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**LWA**solutions



# College of Engineering

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Computer Science & Software Engineering  
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