

# DAVIN CHIA MING JUAY

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## EDUCATION

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**Middlebury College**, Vermont, Class of 2017 – *B.A in Computer Science & Mathematics*

**June 2013 - Current**

- **Cumulative GPA: 3.93 / 4.0** (College Scholar for all semesters thus far – Highest Academic Honor)
- **Scholarships/Awards:** College Scholar (2014/2015), International Collegiate Programming Competition Regional Finalist (2014/2015), Ward First-Year Writing Award Finalist, Singapore Armed Forces Scholarship Award (for excellent military performance), Singapore Airlines Scholarship Award (1 of 3 chosen out of 5000).
- **Relevant Courses:** Data Structures, Computer Architecture, Algorithms, Theory of Computation, Software Development, Computer Graphics, Economic Statistics, Linear Algebra, Probability, Multivariable Calculus.

**Related Skills:** Java • Python • HTML5 • CSS3 • Javascript • Git

## PROJECTS

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**Realistic and Randomised Browser World Generator**

**2015**

- A highly realistic and randomly generated WebGL browser world, complete with weather effects.
- Implemented Skybox, environmental mapping, GPU rain particle system, billboard, perlin-noise terrain feature generation and infinite tiling. Used dynamic level-of-detail and memory optimization to allow for 300,000 polygons per frame.

**DataRift**, HackDartmouth

**2015**

- A Rift-integrated web server that reads XML files and displays relationships between data onto multiple 3D Globes.
- Implemented geometric algorithm to display various relationships between disparate data. Helped design the different coordinate systems the app was rendered in.

**Native HTML5/Javascript Battleship Game with AI**

**2015**

- Implemented the classic Battleship game as a web game in HTML5/CSS3/Javascript.
- Used probability distribution functions to design an AI that achieves victory within a minimum of 30 moves, and an average of 44 moves.

**BlockUnlock**, HackRPI

**2014**

- A rapid-reflex native Swift game that teaches Boolean Logic in a simple, intuitive and fun manner.
- Helped design a graph data structure and traversal algorithm to decide if users input the right answer. Algorithm was also able to scale difficulty to users.

**Native Java Spell-Check**

**2014**

- Implemented Spell-Check with adaptive Dictionary function. Used modified binary search to improve efficiency.

## EXPERIENCE

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**Research Assistant**, Christman Lab for Online and Approximation Algorithms, Middlebury College

**June 2015 – Current**

- Developed a 1.5-competitive pseudo-polynomial approximation algorithm for the general online Colored Bin Packing problem. Improved upon the previous 4-competitive upper bound.
- Created a  $O(n)$  algorithm that optimally solves the unit and zero weight case, both of which were previously unsolved.
- Developed a constant time algorithm that completely solves the previously unsolved online Reliable Server Assignment problem.
- Co-wrote three papers that are being submitted for review by international conferences and journals for publication.

**Middlebury College Programming Competition Team**

**Fall 2014 – Current**

- ACM ICPC 2014 Regional Finalist (1<sup>st</sup> of 8); ACM ICPC 2014 Regional Finalist (2<sup>nd</sup> of 10); CCSCNE 2015 Top 8 (of 30);
- Helps organize weekly practice sessions. CodeForces, Expert; CodeWars, 4 Kyu.

**Computer Science Student Advisory Committee** – Member, Middlebury College

**Fall 2014 – Current**

- Assists in the evaluation of new hires and future planning of courses; serves as a link between the students and the department.

**Teaching Assistant**, CS101/CS150: The Computing Age/Computing for Sciences, Middlebury College

**Spring 2014 – Current**

- Holds weekly individual tutoring sessions. Mentors roughly 20 – 30 students for 4 – 6 hours each week.

**Project Taom**, Singapore – Founder; Non-Profit Society

**December 2009 – Current**

- Helped found Project Taom, a Singapore-based society working on poverty alleviation in rural Cambodian villages; featured on national radio; invited to Clinton Global University 2015 as a Presenter; raised over \$60,000 thus far.
- Designed and implemented a responsive website, [www.projecttaom.org](http://www.projecttaom.org), using HTML5, CSS3, JQuery and Node.js.

**Singapore Armed Forces** – First Lieutenant; Gryphon Company 2IC; 9DIV Infantry

**January 2011 – December 2012**

- **Awards** – Company Best Award for graduating Top in Basic Military Training, Officer Sword for graduating Top 10% of Officer Cadet School, promoted early and offered enrollment in West Point Military Academy due to excellent military performance.
- Directly responsible for the operational readiness, combat effectiveness and training efficiency of an entire Company of approximately 250 men, both combat and non-combat staff; led entire Company on multiple missions.

## INTERESTS

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**Interests:** Competed in 4 open-sea kayaking marathons thus far; Attends Swing conventions in America and Singapore; Rock climbs.

**Activities:** Freelance Web Developer • Volunteer Emergency Medical Technician • Project Taom