

# Jennifer Tam

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## Contact

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## Education

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|-----------------------|--|
| <b>2007 – Present</b> | <b>PhD-Computer Science, Advised by Manuel Blum and Luis von Ahn</b><br>Carnegie Mellon University, Pittsburgh, PA 15213 |
| <b>2003 – 2007</b>    | <b>BS-Computer Science, Mathematics, and Physics, Magna Cum Laude</b><br>Tufts University, Medford, MA 02155             |

## Research Projects

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| <b>Designing a More Secure and Usable Audio CAPTCHA</b><br><b>Carnegie Mellon University</b>   | <b>Research</b><br><b>May 2008-Present</b>             |
| <ul style="list-style-type: none"><li>◆ Redesigning the audio CAPTCHA so that it is secure against automatic attack.</li><li>◆ Ensuring that the human pass rate of the new CAPTCHA is higher than the current versions.</li><li>◆ Collecting transcriptions of audio on which automatic speech recognition fails through human solutions</li><li>◆ Using human solutions to CAPTCHAs to transcribe audio when speech recognition programs fail.</li></ul> |  |
| <b>Analyzing the Security of Audio CAPTCHAs</b><br><b>Carnegie Mellon University</b>   | <b>Research</b><br><b>Nov. 2007-May 2008</b>           |
| <ul style="list-style-type: none"><li>◆ Created a method to solve audio CAPTCHAs in which users are required to identify letters/digits.</li><li>◆ Tested AdaBoost, k-NN, and SVM on three different sets of audio CAPTCHAs.</li><li>◆ Automatically passed more than 58% of Google, Digg, and reCAPTCHA's audio CAPTCHAs</li></ul>  |  |
| <b>Adapting Human Identification Protocols to RFID Technology</b><br><b>DIMACS (Center for Discrete Mathematics &amp; Theoretical Computer Science), Stevens Institute of Technology, and Rutgers University</b>   | <b>Research</b><br><b>June-July 2006</b>               |
| <ul style="list-style-type: none"><li>◆ Created simulations of the HB and HB+ protocols for RFID tags to find secure parameters</li><li>◆ Analyzed possible security risks within the protocols and mathematically explained behavior</li></ul>  |  |
| <b>Algorithm for Locating Unstable Periodic Orbits in Dynamical Systems</b><br><b>Tufts University</b>   | <b>Independent Study</b><br><b>Sept. 2005-May 2007</b> |
| <ul style="list-style-type: none"><li>◆ Developed a new algorithm to identify unstable periodic orbits within dynamical systems</li><li>◆ Created a computer program which utilized the above algorithm for the Lorenz attractor</li><li>◆ Analyzed the behavior of general orbits according to their proximity to unstable periodic orbits</li></ul>  |  |

## Academic Awards

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| Google Anita Borg Scholarship                      | 2008-2009 |
| NSF Graduate Research Fellowship Honorable Mention | 2007-2009 |
| The Class of 1947 Victor Prather Prize             | 2006-2007 |

## Publications

- Tam, J., Simsa, J., Hyde, S., Von Ahn, L., "Breaking Audio CAPTCHAs," Advances in Neural Information Processing Systems 21 (NIPS 2008), MIT Press.
- Tam, J., Huggins-Daines, D., Von Ahn, L., Blum, M., "Improving Audio CAPTCHAs," In Proceedings of The Symposium on Accessible Privacy and Security (SOAPS 2008).

## Activities

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|--|-----------------------------|
| <b>Women@SCS – Carnegie Mellon University</b>  | <b>Sept. 2007- Present</b>  |
| <ul style="list-style-type: none"><li>◆ Present outreach Roadshow to middle and high school students at schools and AAAI conference.</li><li>◆ Teach computer science topics with activities at weekly Technights workshops for middle school girls.</li></ul> |                             |
| <b>Prospective Student Open House – Carnegie Mellon University</b>   | <b>April 2008, 2009</b>     |
| <ul style="list-style-type: none"><li>◆ Introduced prospective students to the department and city of Pittsburgh</li></ul>   |                             |
| <b>ACM-W Chapter of Women in Computer Science – Tufts University</b>   | <b>Sept. 2005- May 2007</b> |
| <ul style="list-style-type: none"><li>◆ Recruited, promoted, and assisted female students in computer science studies</li></ul>  |                             |
| <b>Student Teacher Outreach Mentor Program – Tufts University, CEEO</b>  | <b>2004-2005</b>            |
| <ul style="list-style-type: none"><li>◆ Coached 6<sup>th</sup> and 7<sup>th</sup> graders competing with LEGO robots</li><li>◆ Explained computer programming and the use of simple machines to participants</li></ul>   |                             |

## Teaching Experience

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|---|-----------|
| TA for Undergraduate Algorithms (15-451) – Carnegie Mellon University | Fall 2008 |
| TA for Introduction to Computer Science (COMP 11) – Tufts University  | 2007-2009 |
| Grader for Introduction to Calculus (MATH 5) – Tufts University       | 2005-2007 |