

Linh Huynh

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Tagkopoulos Lab
Room 5312
Genome and Biomedical Sciences Facility

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- EDUCATION** ◇ **University of California**, Davis, CA (2010 - Now)
Ph.D. in Computer Science
Advisor: Prof. Ilias Tagkopoulos
- ◇ **Ho Chi Minh City University of Technology**, Ho Chi Minh, Viet Nam.
Bachelor of Engineering in Computer Science and Engineering (Honor Program), April 2008.
Advisor: Dr. Man Nguyen
- RESEARCH INTERESTS** ◇ Synthetic biology
◇ Systems biology
◇ Microbial evolution
◇ Theory of computation & Algorithms
- PEER-REVIEWED PUBLICATIONS** ◇ **L.Huynh**, J.Kececioglu, I.Tagkopoulos. “Automated Design of Synthetic Gene Circuits through Linear Approximation and Mixed Integer Optimization”, Proceedings of the 3rd International Workshop on Bio-design Automation, IWBD A’11, San Diego, 2011.
◇ **L.Huynh**, J. Kececioglu, I.Tagkopoulos. “Automatic Design of Synthetic Gene Circuits through Linear Approximation and Mixed Integer Non-linear Programming”, invited paper, PLoS ONE, 2011, under revision.
- HONORS & AWARDS** ◇ **Gold medal and Advancement award**, IGEM Synthetic Biology competition, MIT, Boston, 2011
Role: Graduate student advisor to the IGEM undergraduate team
◇ **Vietnam Education Foundation Fellowship**, Davis, CA (\$56,000) (2010 - 2012)
◇ **First prize, High School Mathematics Competition**, Ho Chi Minh city, Vietnam, May 2003
- WORK EXPERIENCE** ◇ **Research Assistant**, University of California, Davis (2010 - now)
Automated design of synthetic gene circuits by mixed integer non-linear optimization
◇ **Research Assistant**, Ho Chi Minh City University of Technology. (2008 - 2010)
Orthogonal codes and their applications
- TEACHING EXPERIENCE** ◇ **ECS 124**: Theory and Practice of Bioinformatics
UC Davis, Spring 2011, Teaching Assistant
◇ **ECS 505001**: Discrete Mathematics
Ho Chi Minh City University of Technology, Spring 2010, Teaching Assistant
◇ **ECS 505004**: Introduction to Artificial Intelligence
Ho Chi Minh City University of Technology, Spring 2009, Teaching Assistant
◇ **ECS 503001**: Data Structures & Algorithms
Ho Chi Minh City University of Technology, Fall 2008, Teaching Assistant
- ACTIVITIES** ◇ **External Reviewer**, 8th International Symposium on Automated Technology for Verification and Analysis. Lecture Notes in Computer Science 6252, Springer. September, 2010.

- PERSONAL SKILLS
- ◇ **Programming Languages:** Java, C, C++, Perl, Prolog, Lisp, Assembly, Matlab, AMPL, GAMS, LaTeX
 - ◇ **Operating Systems:** UNIX/LINUX (Fedora, Ubuntu), Windows
 - ◇ **Spoken Languages:** Vietnamese (native), English
- SELECTED PROJECTS
- ◇ **Orthogonal arrays and their applications**
Funded by the World Bank, advised by Dr. Man Nguyen
The goal of this project is to improve the bounds of orthogonal arrays, construct some new non-trivial arrays and apply them to design experiments in industry.
 - ◇ **Similarity estimation on students source codes**
Funded by Ho Chi Minh City University of Technology, collaborated with Dr. Phung Nguyen
In this project, we propose a new metric that can be used to estimate the similarity between different source codes and a tool that can compute this metric efficiently. Our tool is used to detect the plagiarism in student 's programming exercises at Ho Chi Minh City University of Technology.
 - ◇ **Simulating diauxic growth of *E. Coli* on glucose/lactose**
Advised by Professor Tagkopoulos
This project combines an ordinary differential equation model and the flux balance analysis technique to simulate the diauxic growth of bacteria on different carbon sources.
 - ◇ **Predicting evolution under pleiotropic constraints**
Collaborated with Andreas Pavlogiannis and advised by Professor Tagkopoulos
In this project, we simulate the evolution of gene regulatory network with different topology characteristics to observe the influence of these charecteristics on the evolution process.
 - ◇ **Analyzing the commutativity of loops**
In this project, we propose a novel concept *commutative* to classify the loops. We formalize this concept and show that if a loop is commutative then it can be verified efficiently. We also build a procedure to check if a loop is commutative or not . In the case the loop is non-commutative, we propose some techniques to transform them to some standard forms which are either commutative or irreducibly non-commutative
 - ◇ **Optimizing genetic modifications in biochemical production**
Advised by Professor Tagkopoulos
This project will model both processes of gene regulation and metabolism and use flux-balance analysis and mixed-integer linear programming to figure out the best way to knock-out, over-express or integrate a new plasmid into host cells to optimize some given objectives such as maximizing the production of ethanol or butanol.
- RELEVANT COURSES
- ◇ **ECS 201A** Advanced Computer Architecture
 - ◇ **ECS 222A** Design and Analysis of Algorithms
 - ◇ **ECS 240** Programming Languages
 - ◇ **ECS 270** Artificial Intelligence
 - ◇ **ECS 289K** Scientific Computing
 - ◇ **ECS 289I** Networks
 - ◇ **ECS 289L** Biological Networks
 - ◇ **ECS 289A** Convex Optimization
- REFERENCES
- Prof. **Ilias Tagkopoulos**
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