

Visualization of RNA Secondary Structures

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Abstract

An early step toward evaluating a predicted RNA secondary structure is to visualize the predicted structure in graphical form. This talk will present an algorithm for efficiently drawing RNA secondary structures. The algorithm represents the direction and space for a structural element using vector and vector space, and generates nearly overlap-free polygonal displays. The algorithm and a graphical user interface have been implemented in a working program called VizQFolder on IBM PC compatibles.

CURRICULUM VITAE

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RESEARCH INTERESTS

Computer modeling of RNA structures
Computer graphics
Mobile computing

EDUCATION

<u>University/location</u>	<u>Degree/Department</u>	<u>Dates</u>
Seoul National University Seoul, Korea	B.S. magna cum laude Geology (minor in Computer Science)	1979-1983
KAIST Seoul, Korea	M.S. Computer Science	1983-1985
University of Minnesota Minneapolis, Minnesota, USA	M.S. Computer Science	1986-1989
Rutgers University Piscataway, New Jersey, USA	Ph.D. Computer Science	1989-1994

RESEARCH AND PROFESSIONAL EXPERIENCE

<u>Dates</u>	<u>Position/Organization</u>
3/85-8/86	member of research staff Network section, ETRI, Korea
3/89-6/89	systems programmer, Academic Computing Services and Systems University of Minnesota, Minneapolis, USA
8/94-2/95	senior member of research staff Mobile communication section, ETRI, Korea
3/95-present	assistant professor Automation engineering department, Inha University, Korea

PUBLICATIONS

International Journal Papers

- K. Han, A graphical tool for parametric simulation of the RNA structure formation, *Mol. Cells*, Vol.10, No.3, 348-355, 2000.
- K. Han, D. Kim, and H.-J. Kim, A vector-based method for drawing RNA secondary structure, *Bioinformatics*, Vol.15, No.4, 286-297, 1999.
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- K. Han and A. Gelsey, The Epistemology of Physical System Modeling, In *Proc. AAAI-94*, 1454, 1994.
- K. Han and A. Gelsey, Compositional Modeling for Complex Spatial Reasoning Tasks, In *Proc. QR-94*, 124-134, 1994.
- K. Han and A. Gelsey, Automated Model Generation and Simulation, In *Proc. Canadian Conference on Artificial Intelligence*, 147-154, 1994.
- K. Han and A. Gelsey, Qualitative Modeling of RNA Structure, In *Proc. IJCAI-93*, 1558-1563, 1993.

Domestic Conference Papers

- D. Lee and K. Han, Intelligent computer telephony integration using Dempster-Shafer theory, *Proc. 14th KIPS Fall Conference*, Vol.7, No. 2, 1009-1012, 2000.
- D. Lee and K. Han, Intelligent Computer Telephony Integration for remote monitoring of patients in intensive care units, *Proc. 12th KIPS Fall Conference*, Vol.6, No.2, 125-130, 1999.
- S. Kim, J. Kim, S.-H. Hwang, and K. Han, Development of a Virtual Reality System for Practicing Excavator Operation, *Proc. 12th KIPS Fall Conference*, Vol.6, No.2, 67-71, 1999.
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