COMPUTER AND INFORMATION SCIENCE DEPARTMENT NEWSLETTER
June 2017, Vol 5

A Publication of the Brooklyn College CIS Department

Welcome to the Fifth Volume of the Brooklyn College Computer and Information Science Department Newsletter. This issue begins in memoriam to our dear colleague Danny Kopec, the previous co-editor of this newsletter, on a year since his passing. Brief summaries of two new faculty members joining our department this Fall follow, with a fuller treatment in our next issue. We say goodbye to our retirees and wish them well. We are proud to include the accomplishments of the department's faculty and students as well. This Newsletter presents activities that primarily have taken place between June 2016 and June 2017.

In Memoriam - Danny Kopec

(February 28, 1954 – June 12, 2016)

Professor of Computer Science at Brooklyn College, author, entrepreneur and International Master of chess, Dr. Danny Kopec, died at age 62 years from pancreatic cancer. A chess prodigy and Master at 17, he earned his Bachelor's from Dartmouth College and PhD from University of Edinburgh in Machine Intelligence. His dissertation entitled: *Human and Machine Representations of Knowledge*, was completed under the guidance of Dr. Donald Michie, a well-respected British researcher in artificial intelligence. During World War II, Michie famously worked for the Government Code School at Bletchley Park as a cryptographer, contributing to the effort to solve "Tunny," a German teleprinter cipher.

A prolific author, his chess products included eight books and nine feature length instructional videos. He was a proponent of the chess opening, The Kopec System, and co-creator of the influential Bratko-Kopec Test for measuring computer chess ability. He ran Kopec's Chess Camp for over 2 decades. He co-authored textbooks in the area of artificial intelligence and over one hundred academic articles.

His late mother, Magdalena Kopec, was an accomplished artist who created oil paintings and inspirational water colors. Danny's father was a pharmacist who grew up in Czechoslovakia during the Holocaust, later escaped to Israel, where Danny was born in Kfar Saba. His family moved to Kew Gardens, NY, when he was a toddler. He is survived by his wife, Sylvia; his son, David; his stepson, Oliver; and his sister Patinka Kopec-Selman.

It's hard to believe that it's a year since his passing and we no longer are the recipients of his warm greetings and ever present smile. The title "gentleman" was always applicable to him, no matter how you parsed the word. He is sorely missed.

Fall 2017 - New Faculty Briefs

Hui Chen

Hui Chen will be joining our department in Fall 2017 from Virginia State University. His recent and current research is on a few problems in software engineering, wireless networks, wireless sensor networks, and system and network security. He has taught courses in computer networks, computer security, and web programming among others. He is a member of IEEE and ACM. He served and has been serving on technical program committees of conferences sponsored by IEEE or ACM. A fuller bio will appear in the next issue.

Tziporah Tracy Halevi

Tzipora Halevi is a post-doctoral fellow in the Department of Computer Science and Engineering at NYU Polytechnic School of Engineering. Tzipora received her Ph.D. from NYU-Poly , her M.Sc. from Northeastern University in Boston and a Bs.C. from the Technion, Israel in Electrical Engineering. Prior to her Ph.D., Tzipora worked in industry for a few years, developing medical imaging systems for the medical and dental markets. She will be joining our department in Fall 2017. A fuller bio will appear in the next issue.

Retirements

Our best wishes to **Jackie Jones** upon her retirement from a very productive career. She has been an integral part of the college and the department throughout the years. We wish her the best of luck in her future endeavors.

The CIS office won't be the same with the retirement of **Camille Martin**. Her organization, knowledge and calm demeanor kept us on an even keel even during the stormiest of times. Whatever your plans for the future, we wish you the best.

Faculty Activities

Distinguished Professor Rohit Parikh

Publications

Shweta Jain and Rohit Parikh, "Modeling Plural Identities and Their Interactions", Presented at the *International Conference on Game Theory,* Stony Brook University, July 2016

Yunqi Xue and Rohit Parikh, Strategic Influence in Different Social Structures, Presented at the *International Conference on Game Theory,* Stony Brook University, July 2016

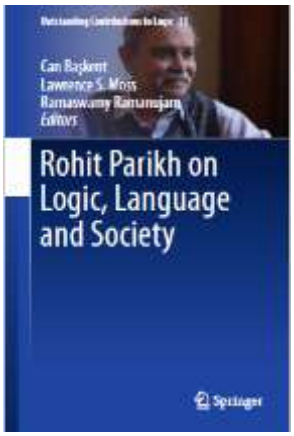
"Justified True Belief, Plato, Gettier and Turing", Rohit Parikh and Adriana Renero, In *Philosophical Explorations of the Legacy of Alan Turing: Turing 100* (Boston Studies in the Philosophy and History of Science), Jun 22, 2017. Edited by Juliet Floyd and Alisa Bokulich (Springer)

Rohit Parikh, "Is there a Church-Turing Thesis for Social Algorithms?", In *Philosophical Explorations of the Legacy of Alan Turing: Turing 100* (Boston Studies in the Philosophy and History of Science), Edited by Juliet Floyd and Alisa Bokulich (Springer, Jun 22, 2017)

Games, Logic and Society: An 80th Birthday Celebration Honoring Rohit Parikh

December 1-2, 2016, at the CUNY Graduate Center. Speakers were Sergei Artemov, Alessandra Carbone, Samir Chopra, Jan van Eijck, Melvin Fitting, Konstantinos Georgatos, Larry Moss, Stephen Neale, Eric Pacuit, Laxmi Parida, and Rohit Parikh.

Rohit Parikh on Logic, Language and Society, (Outstanding Contributions to Logic) Springer, March 2017. Can Baskent, Lawrence S. Moss and Ramaswamy Ramanujam, editors. Published in honor of Rohit.



Distiguished Professor Ted Raphan

Raphan T, Cohen B, Xiang Y and Yakushin SB (2016) "A Model of Blood Pressure, Heart Rate, and Vaso-Vagal Responses Produced by Vestibulo-Sympathetic Activation". *Front. Neurosci*. 10:96. doi: 10.3389/fnins.2016.00096

Noson Yanofsky

Publications:

N.. Yanofsky, "Paradoxes, Contradictions, and the Limits of Science", *American Scientist*, Volume 104, pp. 166-173.

N. Yanofsky , M. Zelcer; "The Role of Symmetry in Mathematics", *Foundations of Science*, Vol. 21, No. 1, 2016.

N. Yanofsky, "Galois Theory of Algorithms", *Rohit Parikh on Logic, Language and Society*, Springer, March 2017.

Dina Sokol

Publications:

Dina Sokol has published and presented the following conference papers, the first with a PhD student at Haifa University, Mika Amit, and the second with PhD student at the Graduate Center, Sari Geizhals:

A. Amir, M. Amit, G.M. Landau, and D. Sokol. Period Recovery over the Hamming and Edit Distances, *Latin American Symposium on Theoretical Informatics*, pages 55-67, 2016.

S. Geizhals and D. Sokol. *Finding Maximal 2-Dimensional Palindromes*. LIPIcs-Leibniz International Proceedings in Informatics*:* 54, pages 19:1--19:12. Presented at the 27th Annual Symposium on Combinatorial Pattern Matching CPM 2016.

S. Marcus and D. Sokol. *2D Lyndon Words and Applications*. Algorithmica 77 (1), 116-133, 2017.

Paula Whitlock

Publications:

Paula Whitlock, Wen-Ju Cheng and Jim Cox, "Random walks on graphs and Monte Carlo methods," *Mathematics and Computers in Simulation*, 135, (2017) 86-94

Jie Li, Jianliang Zheng, and Paula Whitlock, "MaD0: An Ultrafast Non-Linear Pseudorandom Number Generator", *ACM Transactions on Modeling and Computer Simulation*, Vol 26, Issue 2, 2016, Article #13.

Marvin Bishop and Paula A. Whitlock, "Five Dimensional Binary Hard Hypersphere Mixtures: A Monte Carlo Study", *Journal of Chemical Physics*, vol. 145, 154502 (2016)

Activities

In July, Paula Whitlock was an organizer and session chairperson at the 10th IMACS Seminar on Monte Carlo Methods.

Paula also presented a lecture entitled "Efficient Deterministic and Non-Deterministic Pseudorandom Number Generation" (with Jie Li and Jianliang Zheng), at the 10th IMACS Seminar on Monte Carlo Methods, Johannes Kepler University, Linz, Austria, July 6-10, 2015.

Rivka Levitan

Publications:

Morales, M. R., & Levitan, R. (2016, December). Speech vs. text: "A comparative analysis of features for depression detection systems:. *Spoken Language Technology Workshop* (SLT), 2016 IEEE (pp. 136-143). IEEE.

Levitan, R., Benuš, Š., Gálvez, R. H., Gravano, A., Savoretti, F., Trnka, M., & Hirschberg, J. (2016). "Implementing acoustic-prosodic entrainment in a conversational avatar". *Interspeech* 2016, 1166-1170.

Levitan, S. I., An, G., Ma, M., Levitan, R., Rosenberg, A., & Hirschberg, J. (2016). "Combining Acoustic-Prosodic, Lexical, and Phonotactic Features for Automatic Deception Detection". *Interspeech* 2016, 2006-2010.

An, G., Levitan, S. I., Levitan, R., Rosenberg, A., Levine, M., & Hirschberg, J. (2016). "Automatically Classifying Self-Rated Personality Scores from Speech". *Interspeech* 2016, 1412-1416.

Levitan, S. I., Levitan, Y., An, G., Levine, M., Levitan, R., Rosenberg, A., & Hirschberg, J. (2016). "Identifying Individual Differences in Gender, Ethnicity, and Personality from Dialogue for Deception Detection". *Proceedings of NAACL-HLT* (pp. 40-44).

Morales, M. R., & Levitan, R. (2016) "Mitigating Confounding Factors in Depression Detection Using an Unsupervised Clustering Approach". *Proceedings of CHI 2016 Computing and Mental Health Workshop.*

Invited talks

"Are these women real? Stereotypical female language in actual vs. movie dialogue." CIRCL: Connecting Innovative Research in CUNY Linguistics. CUNY Graduate Center. March 29, 2016.

Girl Geek Dinner (panelist). Brooklyn College. April 14, 2016.

"New directions in acoustic-prosodic entrainment research" CUNY-NLP Talk. CUNY Graduate Center. December 5, 2016.

"Handling inter-group variability in personality detection." Interactions LLC, Murray Hill, NJ. May 1, 2017.

Grants

PSC CUNY Cycle 47. $6000. July 2016 -- June 2017.
PSC CUNY Cycle 48. $6000. July 2017 -- June 2018.

Program committees

IWSDS 2016, NAACL 2016, ACL 2017, Interspeech 2017
US NSF IIS Program Panel Member (2016)

Devorah Kletenik

Grants

Florencia Salinas, Chava Shulman and Dr. Devorah Kletenik, joint with Claudia Bergeron and Dr. Deborah Sturm of College of Staten Island, were awarded a Collaborative Research Experiences for Undergraduates (CREU) grant for their project, titled "Motivational Feedback in Game-Based Learning for Advanced Programming". "A Serious Game to Teach Computing Concepts," will appear in *HCI International* this summer

CUNY Research in the Classroom Idea Grant for a project titled "Investigating Money Priming in Digital Game-Based Learning".

"Globalizing the Curriculum Award" through the CUNY Office of Academic Affairs.

Michael Mandel

Publications

M. I. Mandel, S. E. Yoho, and E. W. Healy, "Measuring time-frequency importance functions of speech with bubble noise," *Journal of the Acoustical Society of America*, vol. 140, pp. 2542–2553, 2016.

A. Syed, A. Rosenberg, and M. I. Mandel, "Active learning for low-resource speech recognition: Impact of selection size and language modeling data," in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2017.

J. Devaney and M. I. Mandel, "An evaluation of score-informed methods for estimating fundamental frequency and power from polyphonic audio," in *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2017.

M. I. Mandel and J. P. Barker, "Multichannel spatial clustering for robust far-field automatic speech recognition in mismatched conditions," in *Proceedings of Interspeech*, pp. 1991–1995, 2016.

M. I. Mandel, "Directly comparing the listening strategies of humans and machines," in *Proceedings of Interspeech*, pp. 660–664, 2016.

H. Erdogan, J. Hershey, S. Watanabe, M. Mandel, and J. L. Roux, "Improved MVDR beamforming using single-channel mask prediction networks," in *Proceedings of Interspeech*, pp. 1981–1985, 2016.

Grants

Google Faculty Research Award:

Despite recent breakthroughs in automatic speech recognition (ASR), distant microphone conditions are still difficult for state-of-the-art systems because of reverberation and environmental noise. The PI has recently shown that beamforming driven by unsupervised spatial clustering of multichannel audio can help alleviate this difficulty, reducing word error rates by 9.9-17.1% (relative) on the CHiME3 multichannel speech recognition in noise task. This project incorporates a speech model into this spatial clustering system to mitigate these problems, allowing the suppression it uses to be intensified.

NSF CISE Small award:
Environmental noise is one of the largest problems for users of voice technologies, such as hearing aids, mobile phones, and automatic speech recognition. Tthis project uses the innovative approach of driving a speech synthesizer using information extracted from the noisy signal to create a brand new, high quality, noise-free version of the original sentence. Improvements from this approach are expected to have important broader impacts for both the 36 million Americans who are hearing impaired and the 200 million Americans who use smartphones. The project also seeks to encourage members of under-represented groups to pursue careers in science and engineering.

CUNY Junior Faculty Research Award in Science and Engineering (JFRASE):
Humans are much better than machines at recognizing the speech of a talker of interest in a noisy situation, like a cocktail party. One popular hypothesis for this difference is that humans are better at both picking out reliable "glimpses" of that talker's speech from interfering sounds and utilizing contextual clues to fill in the information missing between these glimpses. This project seeks to better understand this glimpsing process in humans through a new listening test and directly use the resulting data to develop a similar "attentional" process for computational systems.

Jim Cox

Paula Whitlock, Wen-Ju Cheng and Jim Cox, "Random walks on graphs and Monte Carlo methods," *Mathematics and Computers in Simulation*, 135, (2017) 86-94

Student Achievements

Congratulations to **Christopher Menedes** and his teammates **Philip Gringer, Akash Jairam, and Ben Hollander** for taking first prize in the CUNY IBM Watson Case Competition. The team consists of all Brooklyn College undergraduate students (mostly computer science students!).

Chava Shulman, who is currently doing research with Prof Kletenik through the CRA-W CREU program, was chosen as a Google's Women Techmakers Scholar and was awarded a $10,000 scholarship

Hindy Drillick, was awarded a GHC Student Scholarship to attend the 2017 Grace Hopper Celebration of Women in Computing in Orlando, Florida, October 4-6, 2017.

Kwan Holloway and Mike Williams, under the supervisor of Devorah Kletenik, created a game, called CodeControl that reviews introductory programming concepts. It was presented at the NYC Spring Play Game Expo.

Science Day Posters

"Fast Computational Methods for Studying Molecular Orbitals in Position and Momentum Space Using Gaussian 09 and Matlab", Jonathan Hanon, Andrzej Jarzecki, Theodore Raphan

"Artificial Intelligence in the Game of SET", Christopher Menedes, Philip Gringer, and Devorah Kletenik

"A Serious Game to Teach Computing Concepts", Florencia Salinas, Chava Shulman, Claudia Bergeron, Devorah Kletenik, Deborah Sturm

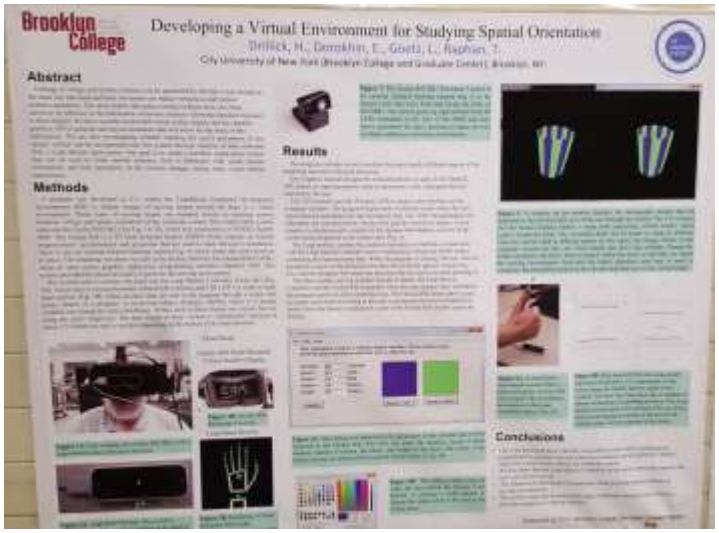
"Acoustic-Prosodic Entrainment and Naturalness in Outlier Speakers", Alyssa Caputo, Rivka Levitan;

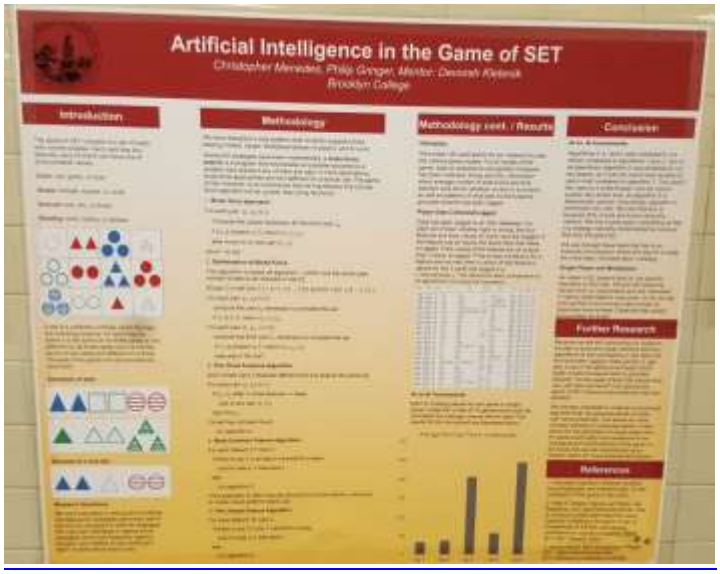
"Word Embeddings and Deception Detection", Tatsiaina Varabyeva, Rivka Levitan;

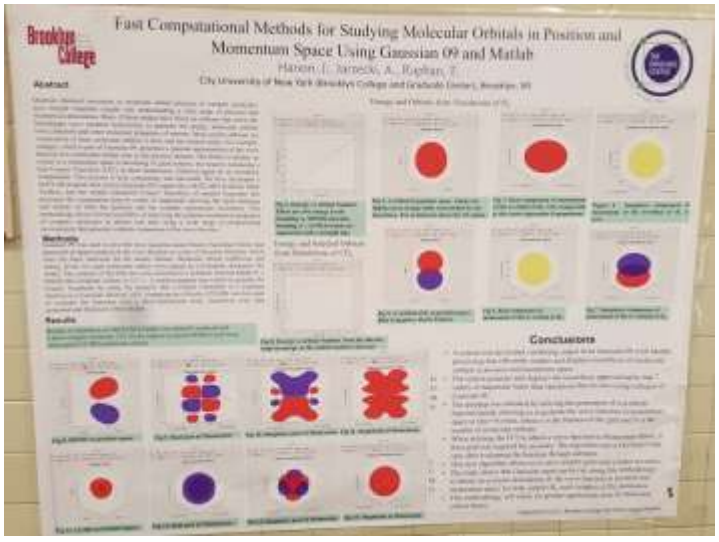
Java Transition

The department's transition from C++ to Java as our introductory programming language has been ably guided by the UCC, chaired by David Arnow. Fall 2017 will see the first sections of introductory Java as the C++ track sails into the sunset. Ira Rudowsky will be serving as coordinator of CISC 1115.

Some of the Science Day Posters







Note: All information presented here was conveyed by our colleagues and the Newsletter Editors cannot take responsibility for verifying its accuracy.

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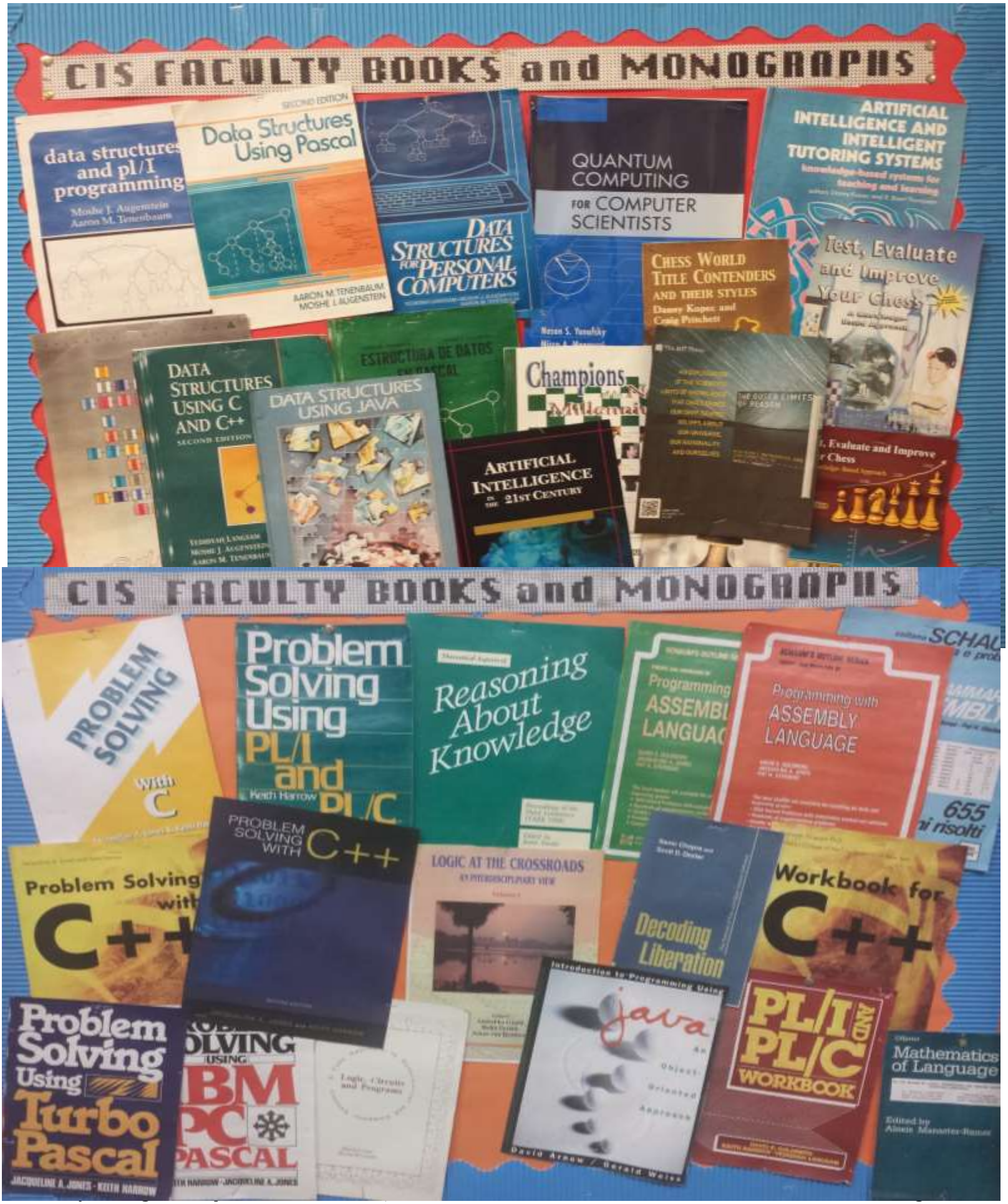
CIS FACULTY BOOKS and MONOGRAPHS
data structures and pl/I programming
Moshe J. Augenstein
Aaron M. Tenenbaum
Data Structures Using Pascal
AARON M. TENENBAUM
MOSHE J. AUGENSTEIN
DATA STRUCTURES FOR PERSONAL COMPUTERS
QUANTUM COMPUTING FOR COMPUTER SCIENTISTS
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Problem Solving Using PL/I and PL/C
Keith Harrow
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Programming ASSEMBLY LANGUAGE
Programming with ASSEMBLY LANGUAGE
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PROBLEM SOLVING WITH C++
LOGIC AT THE CROSSROADS
Decoding Liberation
Workbook for C++
Problem Solving Using Turbo Pascal
JACQUELINE A. JONES · KEITH HARROW
IBM PC PASCAL
Logic, Circuits and Programs
Introduction to Programming Using
java
An Object Oriented Approach
David Arnow / Gerald Weiss
PL/I AND PL/C WORKBOOK
Mathematics of Language
Edited by Almerindo Ojeda