Stuck In The Shallow End: Education, Race, And Computing (MIT Press)
The number of African Americans and Latino/as receiving undergraduate and advanced degrees in computer science is disproportionately low, according to recent surveys. And relatively few African American and Latino/a high school students receive the kind of institutional encouragement, educational opportunities, and preparation needed for them to choose computer science as a field of study and profession. In Stuck in the Shallow End, Jane Margolis looks at the daily experiences of students and teachers in three Los Angeles public high schools: an overcrowded urban high school, a math and science magnet school, and a well-funded school in an affluent neighborhood. She finds an insidious "virtual segregation" that maintains inequality. Two of the three schools studied offer only low-level, how-to (keyboarding, cutting and pasting) introductory computing classes. The third and wealthiest school offers advanced courses, but very few students of color enroll in them. The race gap in computer science, Margolis finds, is one example of the way students of color are denied a wide range of occupational and educational futures. Margolis traces the interplay of school structures (such factors as course offerings and student-to-counselor ratios) and belief systems -- including teachers' assumptions about their students and students' assumptions about themselves. Stuck in the Shallow End is a story of how inequality is reproduced in America -- and how students and teachers, given the necessary tools, can change the system.
Stuck in the Shallow End: Education, Race, and Computing approaches the delicate issue of race tactfully while making important points about the value of computer science education, the futility of simply "dumping" cutting-edge technology in otherwise under-resourced schools and the importance of dedicated instructors. Jane Margolis and her research team have provided a powerful account of the disparities plaguing high school computer science education but unfortunately make few useful recommendations for overcoming them. The racial inequality in computing presented in this book seems a lot less subtle than the gender imbalance described in Unlocking the Clubhouse: Women in Computing. Indeed, it is well known that schools primarily catering to minority students tend to be underfunded, overcrowded, poorly led, weak on academics, and filled with under-qualified teachers. This perpetuates the factors leading to this situation in the first place: minority adults tend to get lower paying jobs, buy cheaper houses producing less in property taxes and be less involved in their children's schooling. Given these challenges, it comes as little surprise that computer science education, or in fact advanced education in any subject, reaches few minorities. The book is based on three years of data collection in three LA high schools: one nearly exclusively Hispanic, the other predominantly black and the third in a middle-class white neighborhood with about 50% minority attendance.

During the summer of 2014, I attended a Tapestry Workshop, a program designed to attract diverse students to computing, on the campus of the University of California, Irvine, at the Donald Bren School of Information and Computer Science. At the weeklong training program, teachers and professors presented strategies that they have found to be effective in recruiting African American, Hispanic, and female students into computer science; the speakers were inspirational. The teachers who attended the workshop were provided with resources, too, such as the book Stuck in the Shallow End. More important, I decided to read the book to find out how I could recruit diverse students to my AP Computer Science class. At the beginning of the school year, I approached my administrators about offering an AP computer science course. I met with the principal and assistant principal of instruction to present the benefits of the class. The principal had taught science, which is rare; most administrators do not have a background in STEM, and it didn’t take much to convince her of the importance of the class. In addition, I convinced counselors of the importance of getting underrepresented students into the AP Computer Science class through casual conversations. It was harder to convince the assistant principal of instruction because I don’t think she had a STEM background, and she had to consider the scheduling implications of offering the class. In the end, the principal of instruction decided to offer the class to a group of 22 students
who were African American, Hispanic, and females. Surprisingly, it is not hard to get students interested in computer science, especially if I can show them some of the applications of the subject.

This book is engaging and inspiring. Margolis and her research team spent three years immersed in three high schools in the Los Angeles Unified School District. As a former student in a similar large, public southern California high school, I distinctly remember seeing the gradual decline of African American and Latino students in the advanced courses from the 7th-12th grade. At the time, I had little understanding of why this happened, and even now, am surprised to learn how many complex factors influenced this decline. The picture hasn't changed much since then. Even now, the National Science Foundation is currently funding a nationwide Broadening Participation in Computing program among researchers to address exactly these questions. Margolis' book reveals the structural inequalities that influence the low participation among African Americans and Latino/a students in receiving higher ed degrees in computer science. While the lack of women and minorities in computing and technical careers is an oft-cited statistic, we understand far less about the multiple factors that cause such unequal participation. Margolis' insights into the many hidden causes of why students of certain backgrounds face an increasingly uphill battle is profound, and sometimes shocking. It is easy to look for surface level explanations for this decline of interest but this book reveals how complex and daunting the equation is. It reveals a number of structural problems in detail: the implications of having so few teachers trained to teach high school Computer Science, how throwing hardware (i.

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