BROWN

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To: Prof. Kevin McLaughlin, Dean of Faculty

Dear Dean McLaughlin,

This letter is to inform Brown University that I will join the University of Michigan as a faculty member starting in the Fall Semester of 2015. My formal resignation from Brown University is effective as of today, August 31, 2015, as previously communicated by email to the Department Chair of Computer Science. This letter is not only to officially confirm this transition but also to express my tremendous gratitude, admiration, and best wishes to Brown University. While I am incredibly thrilled to be a part of the growing Robotics Institute at the University of Michigan, I look back on my 11 years at Brown with a deep fondness for the University and its ideals that will always hold a special place in my heart. My growth and accomplishments as a faculty member would not have been possible without the opportunities given to me by Brown University. I leave Brown a more dedicated teacher, a more compassionate advisor, a more mature scholar, and a more mindful citizen of the world.

Brown is a truly special place. It is my endearment for Brown and its ideals that motivates me to continue to be of service, even after my departure. As such, this letter is also intended as a call to action in addressing an issue of critical importance: inequity and segregation in computing at Brown. Myself and many scholars of color in computing hesitate in raising this issue as we would rather focus on matters of intellectual and scientific advancement. However, the growing disparities cannot be ignored and progress cannot be expected without bringing greater awareness to the current situation, both quantitatively and qualitatively. As previously expressed to the faculty of the Department of Computer Science, my hope is that the observations, context, and recommendations described in this letter can help Brown realize positive change, as already occurring at leading universities such as the University of Michigan. In particular, I am encouraging Brown to put in place equitable concrete goals, investments, and accountability to build a critical mass of diverse scholars at all levels of computing. Towards this end, I am recommending immediate investment, support, and recognition of the emerging Mosaic+ student group, whose first goal is the creation of a Summer computing transition program to address the “leaky pipeline” of diverse student attrition into the computing disciplines at Brown.

First, however, I would be neglectful if I did not acknowledge the many great students, faculty, administrators, staff, and members of the greater Brown community with whom I have had the great pleasure to work and collaborate.

I am remarkably fortunate to have been at Brown under the leadership of President Emeritus Ruth Simmons. In addition to being an exceptional and inspiring leader, President Simmons cultivated an environment that allowed me to be included and a culture that allowed me to thrive. As part of President Simmons' Plan for Academic Enrichment, Brown was able to take a chance on me as an ambitious, wide-eyed dreamer fresh out of graduate school. It is my hope that I have provided a good return on this investment in me, and serve as a continuing reminder of Brown's unique strength in nurturing individuals both academically and holistically.

My retention in 2012 and the robotics initiative that resulted was due in large part to the support and acuity of former Provost Mark Schlissel. I always found myself inspired after meetings with Provost Schlissel as he had a way of opening my eyes to new possibilities for my work and the larger picture at Brown. I very much appreciated the efforts of former Provost Vicki Colvin to help advance the robotics initiative, which became Humanity-Centered Robotics Initiative, towards a sustainable model. Provost Colvin's honesty, fairness, and results orientation was aligned with our goals to build research excellence in robotics at Brown. I truly wished Provost Colvin's ideas were given a full opportunity, and look forward to working with her again in the future.

I was extraordinarily privileged to have been a part of the Brown Department of Computer Science (Brown CS) during my early years as faculty, for which I owe a tremendous debt to Prof. Philip Klein. My story and successes at Brown would not be possible without Prof. Klein's consideration and dedication. From a relatively brief encounter in 2003, Prof. Klein took the time to see the potential in me as a young, optimistic academic near the completion of his doctorate. My lasting gratitude applies not only to this opportunity created by Prof. Klein's consideration, but also his tireless and forthright passion for improving Brown CS. The culture of Brown CS during these years under Prof. Eli Upfal, who served as the Chair of Brown CS at my hiring, embodied an enthusiasm and community spirit that is motivating and rare to find. Even past his time as Chair, I continue to value Prof. Upfal's presence as a voice of reason for Brown CS.

My development and accomplishments as faculty were forged by invaluable mentorship and role models who exemplify the best balance of teaching and research and theory and practice. During their time at Brown, Profs. Michael Black and Tom Dean were great friends and mentors whose leadership was the lifeblood of artificial intelligence at Brown. Their model of commitment to excellence, collegiality, and stewardship is an example that I continue to strive towards achieving in my own career. I cherished our time as colleagues, where I learned from their guidance as mentors and aptitude for

bringing out the best in people. Any mention of Brown CS would not be complete without giving proper respect to Prof. Andy van Dam. Even years before I set foot on Brown's campus, Prof. van Dam's work had a profound impact on me, both intellectually as a pioneer in computing and organizationally as the architect for computing at Brown. He is an incredible visionary whose remarkable ability to continually remain ahead of the curve is a quality I hope to contribute to robotics and its development. Brown CS was at its best when it was setting the trends for computer graphics, and computing as a whole.

In terms of research competitiveness, I am especially proud of the robotics initiative and its accomplishments during our initial "startup mode." Started a mere 3 years ago, the robotics initiative was my vision to establish distinguished leadership in the rising area of human-robot interaction. With the invaluable support of former Provosts Schilssel and Colvin, my collaborators and I have produced a strong return on the University's investment from my retention startup funds and collaborative OVPR seed awards.

The performance of the robotics initiative is an example of what can be done and what should be expected of a university initiative in line with Brown's ideals. The robotics initiative has continued to catalyze student interest through highly subscribed courses and research opportunities, faculty research for competitive interdisciplinary large-scale grants, inclusive educational and community outreach across the state, and globally visible intellectual leadership. In this regard, the robotics initiative, and its instantiation as the Humanity-Centered Robotics Initiative (HCRI), has been ahead of schedule in realizing its promise as a successful and externally reviewed Signature Academic Initiative.

Most notable among the accomplishments of the robotics initiative is our performance in the highly competitive and esteemed $10M NSF Expeditions program, which is the largest computing award given by NSF. Now in the finalist stage, our NSF Expeditions proposal has been successful by building on Brown's strength for interdisciplinary research to address critical problems in society. In this case, developing state-of-the-art robotics technology to improve care and quality of life for aging populations. This project owes an enormous debt to Dean Fox Wetle and Prof. Richard Besdine for their clarity of insight into the core value propositions in gerontology and public health. It is with their understanding and generosity that we have been able to forge a new path for doing something good through robotics. Dean Wetle has additionally been an indispensable source of interdisciplinary mentorship and collegiality during my post-tenure years. I would be fortunate to have a fraction of her ability as a leader.

The commitment to societal good through robotics also led to my founding the partnership between HCRI and the Rhode Island Students of the Future organization to improve robotics education and foster outreach collaboration. This partnership included establishing the successful Rhode Island Robot Block Party as a meeting point for people interested in robotics and STEM education across the state. While still in its early stages,

the RI Robot Block Party has had thousands of participants in its first 2 years and is poised for considerable positive outcomes with continued attention and support.

I believe HCRI is well-positioned to continue these efforts and become a self-sustained Center under the direction of Profs. Bertram Malle and Michael Littman, although with a continued inclination towards social psychology. My only regret for HCRI is that it was never truly able to bring about true progress and collaboration in addressing the most looming societal question for robotics: creating an equitable labor force. With its strength for interdisciplinary collaboration across the academy, I believe Brown could have provided important intellectual leadership in guiding society towards responsible and humane ways to balance human and automated labor.

One of the highlights of my experience at Brown was the Farewell Lecture given by Prof. Franco Preparata. Prof. Preparata shared important insights into the need to balance the technological advancements of computing with a sense of socioeconomic responsibility. Through my time in Brown CS, I have witnessed the continual acceleration of rewards and opportunities granted to students and graduates of Brown CS. Such a plethora of privileges sits in stark contrast to the outcomes of many in society who have diminishing opportunities and economic support, which is due in part to the computing technologies produced by Brown CS students. Especially as a roboticist, my soul wrestles with the role of automated technologies in a fair and just society against my intellectual curiosity and passion to make such technologies real. To this end, I have often questioned whether the cost of this wonderful academic environment that is Brown CS is its dynamic as a net driver of socioeconomic inequality. My larger concern is that the large majority of Brown CS students are unaware of, dismissive of, or, at worst, hostile to this moral conflict at the heart of computing. Instead, many of our students aim to enjoy the privileges of the computing profession without critical thought of its implications.

The issues of inequality in Brown CS are most acute when viewed through the lens of the racial demographics comprising computing students, postdocs, and faculty. By the numbers, Brown CS is statistically segregationist. Exact enrollment and hiring statistics have been previously requested of Brown CS. However, for reasons unknown, these statistics have not been fully collected and disseminated. Instead, I can only offer my own observations that have gone unchallenged in formal CS faculty meetings. In my 11 years at Brown, there have been no people of color interviewed or hired for faculty positions for either standard faculty slots or “Targets of Opportunity.” There have been no people of color interviewed or hired for postdoctoral positions. There has been only one student of color matriculated into the doctoral program, who did not complete the program. I have not met a single student of color who has matriculated into or completed a Masters program in Brown CS. I can count on two hands (maybe one) the number of students of color who have completed an undergraduate degree in CS.

This computational segregation may not be intentional by many in Brown CS, although it is now clearly systemic. I sincerely believe many faculty in computing and mathematics at Brown are striving to do the right things to bring about fairness and equality. For example, it is worth noting the efforts of ICERM and Prof. Jill Pipher to foster positive change by hosting conferences such as Blackwell-Tapia and CAARMS, of which the latter I had the good fortunate to attend. My deep concern is that the ambitions for growth in computing and the data sciences at Brown, which often sound disproportionate within Brown's culture, will come at the cost of progress towards an equitable computing landscape.

Computing at Brown has approached a crossroads and, on its current trajectory, is in danger of falling on the wrong side of history. These informal statistics above are even more troubling given a historical perspective of Brown University and its steps towards correcting past injustices. Specifically, the well-documented founding and economic growth of Brown 250+ years ago through exploiting Africans people as slave labor, and now the exclusion of African and African-American descendants from the dominant economic force of the last 50 years: computing. Brown CS readily embraces computing's technological and economic advances, as can be seen by the amazing opportunities afforded by its graduates in the largest growth sector of the economy. Unfortunately, Brown CS is also reticent to acknowledge or respond to the negative impacts of the computing culture, which can be viewed as an academic form of "white flight" in this case. On many occasions, several of my colleagues recalled powerful stories of the injustice created by imposed demographic quotas decades ago at Harvard University. Even if not formally imposed, an implicit *de facto* quota, enforced by cultural norms, an undercurrent of complacency, and expressions of microaggressions, is just as harmful, and more egregious in the context of 2015.

Another disturbing factor is the potential for creating a veneer of positive public relations around diversity at the cost of real goals and investments towards an equitable computing landscape. One example of this concern occurred in relation to the Spring 2015 issue of the Brown CS Conduit newsletter. Moved to the back of this issue, the Brown CS department published an article representing an official statement about the state of diversity in Brown CS. This statement was disappointing in demonstrating a considerable lack of understanding of Brown CS in the context of its history and the history of Brown University. Instead, the article appeared to focus on the positive spin of recent (and potentially transient) surges in gender representation rather than a critical analysis of longer-term trends, factors, and goals along the major dimensions of diversity and equitability. It was particularly notable that this article provided no demographic statistics directly, and instead provided a web link to an ephemeral PDF document with sparse data. A more critical awareness and plan of action would have been warranted, especially given the large disparity between the African-American population (approximately 13% of the U.S. population), their representation in Brown CS (a very

small fraction of 1%), and their representation in the prison and jail populations (approximately 40% of U.S. incarceration).

This article also represented the exploitation of one of the few students of color to graduate from Brown CS, who was prominently quoted. This student started in the School of Engineering, coming to Computer Science during the later stages of his program. This student has a considerable passion for Brown CS and was eager to learn as much as he could about computer science while at Brown. However, as his graduation came closer, his economic situation presented a stark dilemma. He could either conclude his studies by taking a corporate job or follow his heart to stay at Brown for the 5th year CS Masters degree, which would incur a significant economic hardship. Even with this dilemma, he was able to win a prestigious GEM Fellowship[1] that would enable him to continue his development in the CS Masters program. With GEM industrial support secured, everything was beginning to line up for this student, except that Brown University would not provide matching support. Ultimately, this student had to decline the GEM Fellowship. This denial of opportunity was distressing on multiple levels, starting with how Brown CS used the student promote an appearance of diversity. On a deeper level, the strong fiscal standing of Brown CS is founded upon the stream of paying customers enrolled in the same Masters program, whose demographics are on the extreme of disproportion (with no students of color to my knowledge). I believe this student's experience of a denied opportunity is just one of several examples where Brown CS has and continues to benefit from the inequality it creates.

With the right goals and leadership, Brown CS has the potential to not just correct these inequities, but also provide a guiding example of positive change towards an equitable computing landscape. A confluence of positive trends have emerged, in relation to student participation, faculty hiring, and societal awareness, to present a window of opportunity for Brown CS. The hiring of Profs. Chris Rose and Stephon Alexander provides the first set of African-American full professors in the physical sciences. I have confidence their example and dedication to diversity in the STEM disciplines can help to more than triple the number of African-American physical science faculty into the double digits.

More importantly, the creation of a successful pipeline of diverse scholars in STEM disciplines requires both concrete long-term goals and investments and updated procedures to realize these goals. While I will not speculate on specific goals for Brown, I can state that greater exposure to and inclusion of scholars of color is a primary remedy for the computational segregation in Brown CS. Towards this end, establishing a critical mass of diverse scholars at all career stages (faculty, postdoctoral, graduate, and

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[1] The GEM Fellowship Program works with companies and universities to provide matching support for worthy students in their pursuit of graduate studies and future opportunities in industry (http://gemfellowship.org)

undergraduate as well as teaching assistants) is a necessity for any true progress. The development of this critical mass can occur in part purely through procedural changes. For example, institution of a "Rooney Rule[2]" for faculty hiring would at a minimum ensure underrepresented minorities in computing would be visible on campus during the hiring process, instead of triaged remotely by a small committee from overrepresented majorities. Except for an individual's sense of responsibility, there is no direct incentive for faculty to interact or work with students of color. Procedurally, such an incentive can be created by placing greater weight on efforts to diversify computing in the assessment of faculty, such as giving presentations at minority serving institutions, mentoring underrepresented minority students and postdocs, and inviting distinguished minority colleagues to visit. On the latter point, I reserve some caution about the effectiveness of distinguished lectures based on the dismal attendance by the Brown CS community at Prof. Richard Tapia's April 2015 Presidential Colloquium as well as the ACM conference held in his honor in Boston during February 2015.

The idealism of procedural changes aside, the reality is that Brown CS needs considerable investment to create a critical mass of diverse computing scholars. Such a critical mass will not be possible without the resources and funding to support positions and studies at all academic levels. Toward this end, such investments could be created by Brown CS itself with the establishment of a 1-to-1 match on all gifts, donations, and industrial partnerships. That is, for every dollar of fundraising in support of computing (excluding sponsored projects), another dollar will be dedicated to supporting student scholarships, sponsored teaching and research assistantships, postdoctoral fellowships, and faculty positions for talented underrepresented minorities, women, and people with disabilities. Additionally, this "computational diversity fund" can also enable transition and support programs ensure proper mentoring and onboarding and fix the "leaky pipeline" for STEM diversity, such as those in preparation by Mosaic+. This 1-to-1 match for computational diversity will not only bring the critical mass for an equitable computing landscape, but also raise awareness to help students of color aspire to excel in computing.

These long term investments with seed capital can have an immediate positive effect in the here and now through the emerging Mosaic+ student group for diversity in computing. As someone who came up through the tenure track at Brown, I realize the true essence of Brown's unique culture and strength comes from its undergraduates. As such, I have been thrilled to see an amazing group of African-American and Hispanic undergraduates join Brown CS in the past year. Numbering in the solid double digits, my 11 years at Brown have never seen such a combination of interest, aptitude, determination, and collective support among students of color in computing. These remarkable students represent the potential for and the beginning of a sustainable pipeline

[2] The Rooney Rule requires National Football League teams to interview minority candidates for head coaching and senior football operation jobs.

for students of color to succeed in the computing disciplines at Brown. In the true sprit of Brown, they not only want to succeed as individuals in computing, they also want to help their peers and future generations. As such, they have come together to form Mosaic+ with the aim of providing a community of support for students in computing and a welcoming transition to those new to computing.

An initial primary goal of Mosaic+ is to establish a "computing transition program" for incoming undergraduates in computing just prior to the start of their first semester of matriculation. Common themes in my discussions with the students of Mosaic+ was their sense of isolation in the beginning of their Brown CS experience and the essential benefit of peer support, mentoring, and effective academic advising. The academic programs of Brown CS can be a difficult fit for many people who are deemed outside the norms of the culture in the CIT Building, and especially so for students who "do not look the part." Through my discussions with Mosaic+, it is clear that many students of color give up on Brown CS quite early in their experience at Brown due to the lack of suitable support through mentoring and advising.

In response to a clear need, I took it upon myself in recent months to ensure each of the students in the current Mosaic+ cohort had thorough academic advising as well as my open door to offer support, guidance, and encouragement. I believe this experience improved their experience in Brown CS and dedication to complete their degree program. In complement, I have learned so much from the experiences of these young scholars about the intellectual, cultural, and administrative issues that face undergraduates from underrepresented groups in computing. It is inspiring and heartwarming to hear their various experiences from their first and second years in Brown CS, see them encounter and overcome intellectual challenges, and understand their perspectives (as well as the perspectives of those who chose not to continue in Brown CS). On many occasions, my job as an advisor is simply to take time for discussion and interaction and ensure concentration contracts were completed appropriately. This process often led to clearing up misunderstandings about academic expectations and career possibilities, informing them of benefits available to all CS students, providing an open mind and new perspective on their experiences in Brown CS, or just offering encouragement. For example, during one memorable meeting, the several Mosaic+ students were unaware they had a publicly-viewable personal web page through their Brown CS account and web space that they could customize. Once this fact was discovered, I spent an hour or so showing them how to access and edit their web space. While this was a fun experience, my sense is that students in the inner cliques of Brown CS already were aware of this feature and much more. This realization made me concerned about cultural double standards contributing to the leaky pipelines in Brown CS.

The mutual benefit experienced in my advising experience with the students of Mosaic+ is at the heart of Brown's spirit of mentoring. The students of Mosaic+ want to build on this spirit to help Brown CS, a department they genuinely love. Even with my departure

from Brown, I remain committed to each of these original members of Mosaic+ and their successful completion of degree programs in Brown CS, as well as any other path they may choose to follow.

In terms of startup investment, I have already dedicated my funds from the 2015 Karen T. Romer Advising Award for use by Mosaic+ to start the computing transition program at Brown, as well as community and support programs for underrepresented groups in computing throughout the academic year. While well intentioned, these funds are not even close to sufficient for reaching these objectives. The proper execution towards these goals requires further investment for a full-time staff person dedicated to administrative needs for these programs, a committed faculty advisor with Summer effort, dedicated all-year space in the CIT building, and allocated budget for student effort and program execution.

I cannot emphasize enough the truly special nature of Brown University and its unique gift for improving people, communities, and society. It is difficult to express with words the passion and privilege one feels to contribute to such an uplifting and rewarding environment. I can only say that I am truly thankful to have been allowed to be a part of the Brown community for so long. I will continue to spread the word about the great people and intellectual environment at Brown, as well as cheer for its continued success while striving to meet its ideals. My hope is that contributions to Brown will continue through the students and postdocs I have taught and advised and the diverse scholars of future generations, such as those in Mosaic+.

Thank you again for a great 11 years at Brown.

Sincerely,

Odest Chadwicke Jenkins, Ph.D.
Associate Professor of Computer Science
Brown University

Cc: Professor Ugur Cetintemel, Chair, Department of Computer Science