University at Buffalo

State University of New York

Department of Computer Science and Engineering

June 3, 2017

Fulbright-Nehru Fellowships
United States–India Educational Foundation
12 Hailey Road
New Delhi 110 001, India
Re: applicant Krishnendu Guha

Dear Fellowships Review Committee:

I am delighted to recommend Mr. Krishnendu Guha for a Fulbright-Nehru Fellowship. I have known him since August 2016 when I gave a 5-day, 20-hour course at the University of Calcutta on algorithms and complexity theory.

Mr. Guha earned an A- in my course, whose major graded component was a take-home final exam. His score of 155/200 was the 3rd-highest in the class of 36 but came to A- on my predetermined scale. It was also incredibly painstaking: 32 typeset pages with tiny print, dozens of tables, and 152 (!) illustrations produced with an art-drawing program. Many of the individual illustrations have over a dozen nodes and links, each node with an inset textual label which I can read only by blowing up the PDF by 10x or so. (Yes OK, many of the diagrams are mouse-copied with one alteration to show the next step in an algorithm, so not working from scratch, but still...) The only reason it wasn't an A was that not all the answers were complete or fully correct—you can see the difference in general remarks I made about one of the problems at the end of my article

`https://rjlipton.wordpress.com/2017/02/27/working-backward/`

But I must say, the one place I have seen similarly intricate and voluminous diagrams was in a paper on quantum circuit designs by . . . Amlan Chakrabarti and Niraj Jha and some of the latter's group at Princeton. And I can also say importantly that Mr. Guha's answers were all wholly original—he did not run to textbooks or online sources seeking solutions to not-quite-the-problems-I-composed to use as a crutch. Hence it showed full command of the mathematical techniques, ones that are shared with several branches of cyber-security. I had one PhD graduate in that area in 2008 and his thesis included 10+ pages devoted to describing just one protocol he designed—so the work style was similar.

Mr. Guha has an impressive record of research papers already published, and he is first author on quite a few. In all he is clearly a dynamo, so I certainly believe he will be able to assume a leading role in Professor Jha's group. The papers also show considerable variety and practicality. If my recollections are right, he was also one of the more garrulous and outgoing students who collectively played good hosts during my ten days at the university, for instance ordering my lunch food—since time in the lecture break and distance did not allow me to go out for lunch.

Hence I can give him my highest recommendation for this fellowship. I will be happy to answer any other questions you may have.

Yours sincerely

Dr. Kenneth W. Regan