

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
SCHOOL OF ENGINEERING  
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ENGINEERING INTERNSHIP PROGRAM APPLICATION

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Last First M. I.
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3. Permanent Address 24 Madison Avenue Jericho, NY 11753  
Phone ( 516 ) 939 - 0056 Ethnicity (optional) Indian
4. Citizenship U. S. Date of Birth 9/ 27 / 79 Social Security Number 130 - 62 - 8212  
Visa Status \_\_\_\_\_
5. List institution(s) you have attended

Institution	Dates Attended from - to	Expected Date of Graduation	Credits Earned	Major	GPA
Mass. Inst. of Tech.	97 - Pres.	6/2001	185	16 Aero/Astro	4.0/5.0

6. **Briefly** describe prior research experience, if any.  
Four summers ago I worked at Brandeis University with Dr. Timothy Hickey in the Computer Science department. My project involved developing a parallel processing lattice gas cellular automata (LGCA) system. After developing a two-dimensional LGCA, I decided to extend the program into three dimensions, and in the process learned much about three-dimensional graphics and parallel computation. I tested these tools by running various particle and fluid dynamics simulations.  
I returned to Brandeis the following summer and once again worked with Dr. Hickey. Building upon the experience with three dimensional graphics I gained while developing the LGCA tools, I designed visualization tools for Dr. Hickey's interval arithmetic system which improves the accuracy reduces uncertainty in numerical problems. I began by developing an abstract framework for the visualization system that emphasized a modular approach so as to make the system adaptable to user needs. By the end of summer I had developed a suite of Open Inventor/OpenGL based visualization system.  
My guiding theme for freshman year was to spend my first year trying out things that I had not done in the past. To that end, I decided to do management research at the Sloan School with Prof. Sheena Iyengar. We wanted to determine how the number of choices given to someone affected their decision-making ability, and whether this effect was the same for trivial and non-trivial choices. To accomplish this, we develop a trading game in which MBA students were given an imaginary cash portfolio of \$100,000 and told to invest this money in the stock market. We found that some immediately narrowed down the choice of stocks from the original 97 to less than ten, while others looked at all 97. Their methods of selection varied also from random, to careful market analysis. The analysis of this data is not yet complete so the results given above are preliminary.
7. Special skills, interests, hobbies, languages  
Beyond experience with computers including programming, I have unique ability to explain fairly complex concepts in a non-technical manner. This ability has served me well in the various teaching positions I've had this year.
8. Summer and part-time Work Experience(s)

Employer	Address	Duties	Employed Dates
Museum of Science	Science Park Boston, MA 02114	Helped develop and supervise interpretation program	Summer 1998

9. Briefly describe why you wish to obtain an internship and state your career goals.

Wanting to see the real world of information systems, I interned at Computer Associates (CA) during the summer after my senior year of high school. While there I learned two important lessons: (1) that IT was not what I wanted to do with my life, and (2) that the best way to find out what it's like to work in a particular field is to actually go out and work. When I told one of my good friends who had recently graduated MIT with a combined bachelors and masters through the EE/CS internship program (VI-A) of my experience at CA, she commented on how the VI-A program and working in industry solidified her commitment to the field as a career. I was happy to learn that the Engineer Internship Program offered me a similar opportunity as an Aero/Astro major.

If all goes well, my experience in EIP will confirm engineering as my career path, specifically as a systems engineer. I was first attracted to the Aero/Astro department by the incredible complexity of the systems they design and develop. I find it amazing that a Boeing 777, despite its innumerable parts, (almost) always perform flawlessly as a unified system. I would like to spend my next 40 years trying to find a better way to understand complex systems so that they may be implemented in the most efficient manner.

After working for 40 or so years, I'd like to retire and return to academia and teach, for teaching has always given me the same rush as successfully solving an engineering problem. Furthermore I believe that if I am successful as a systems engineer I will have a wealth of experience to share with the engineers of the future.

10. Please indicate which research area you would prefer to work in (if you have a preference).

One particular portion of aero-space systems that I find interesting is the interaction of the complex aero-space system with another complex system: the brain. If one looks at recent aviation accidents one finds that "Pilot error" or "Controller error" caused many of them. In those cases the problem was not the system itself, but the interface between the system and the user. If we wish to further improve air safety we must look at improving this interface by looking at instrumentation, guidance and control systems, since these are the sub-systems most directly connected to the humans.

11. List your strongest skills (e.g. computer, language, design)

- 1) An ability to analyze problems from a quantitative viewpoint.
- 2) Programming Skills; Languages include BASIC, Pascal, C, C++, visual programming and graphics
- 3) Communicate technical information in a non-technical manner
- 4) Pick up new skills quickly and teach skills to others

12. Honors, extracurricular activities, fraternities and sororities

Numerous academic honors including National Merit Finalist and AP Scholar with distinction. Numerous research honors including Westinghouse Science Talent Search. Participant in various volunteer and community programs including the Physical Sciences Interpretation program at the Museum of Science.

13. List on a separate piece of paper the **subjects** you have taken (**subject number and title**).

14. References (two letters of reference required)

Name (Please Print)	Address	Phone
Dr. Timothy J. Hickey	Brandeis University Waltham, MA 02254	(617) 736-2706
Dr. Peter Dourmashkin	MIT 24-612 77 Massachusetts Ave. Cambridge, MA 02139	(617) 253-37786

Student \_\_\_\_\_  
SIGNATURE

Date \_\_\_\_\_

Faculty Advisor \_\_\_\_\_  
SIGNATURE

Prof. John-Paul Clarke  
PRINT NAME

\_\_\_\_\_  
DEPARTMENT

For identification purposes, kindly submit **one photograph** with application to the EIP Office Rm 1-211