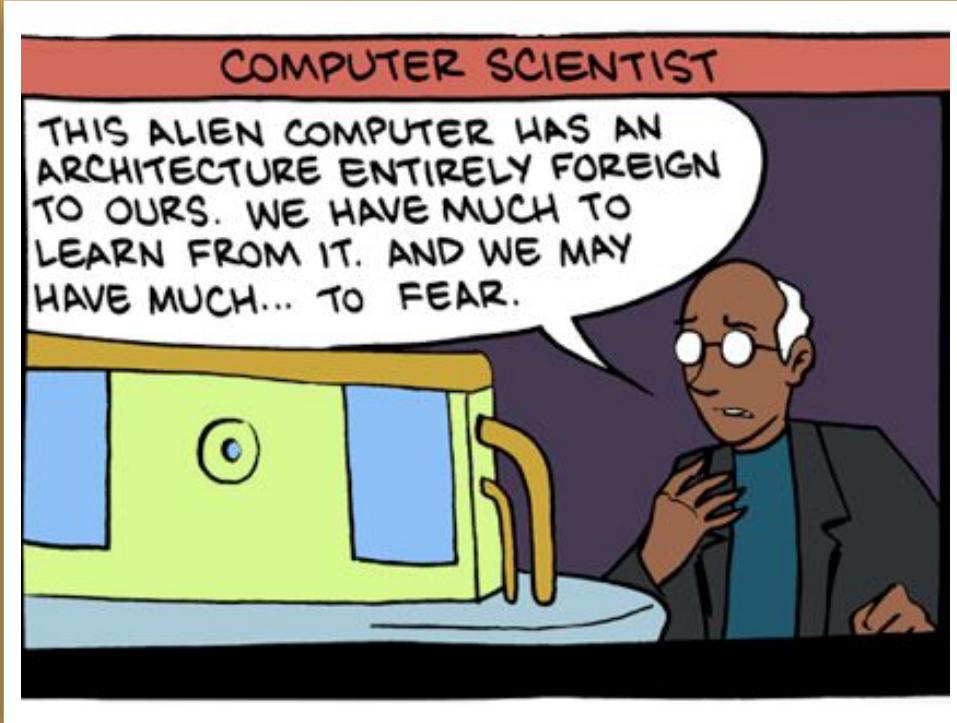


Career Pathway

Dhrumil Patel



WHO AM I?

Self - Exploration



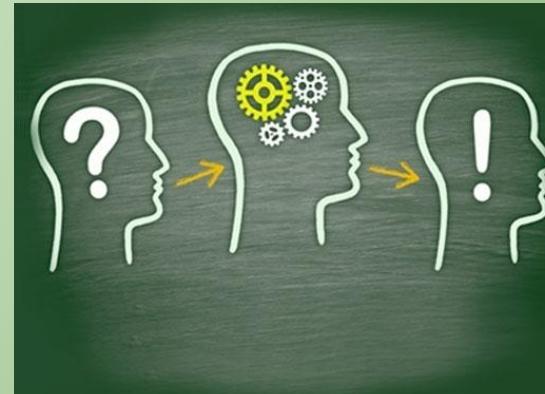
Mission Statement

- Computer scientist
- Interested in using science and math to solve problems
- Creating computer programs

Mission Statement

Skills and Values:

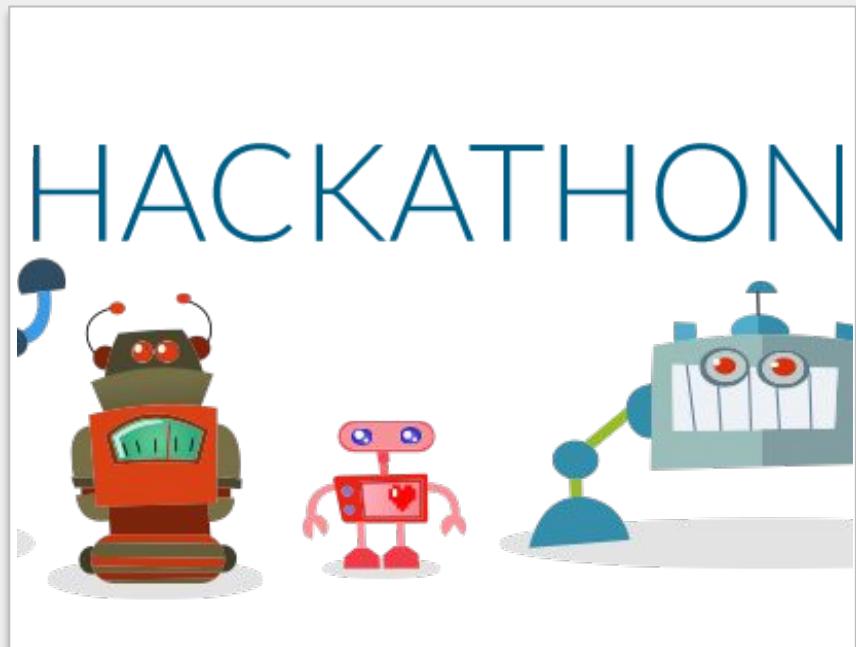
- Analytical Skills
- Logical Reasoning
- Proficiency in multiple languages
- Initiative and Perseverance
- Ingenuity

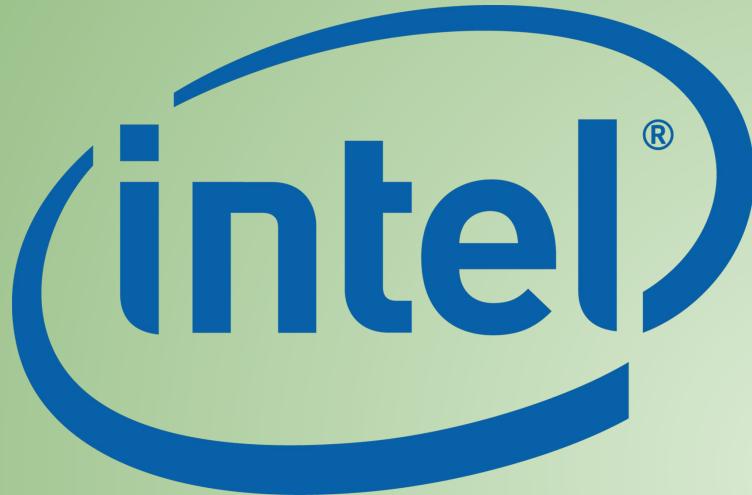


Mission Statement

I will achieve this by:

- Doing well in relevant courses
- Using free time to become proficient with multiple languages and concepts like Machine Learning and Artificial Intelligence
- Competing in the CCC and many more hackathons





Long Term Goals

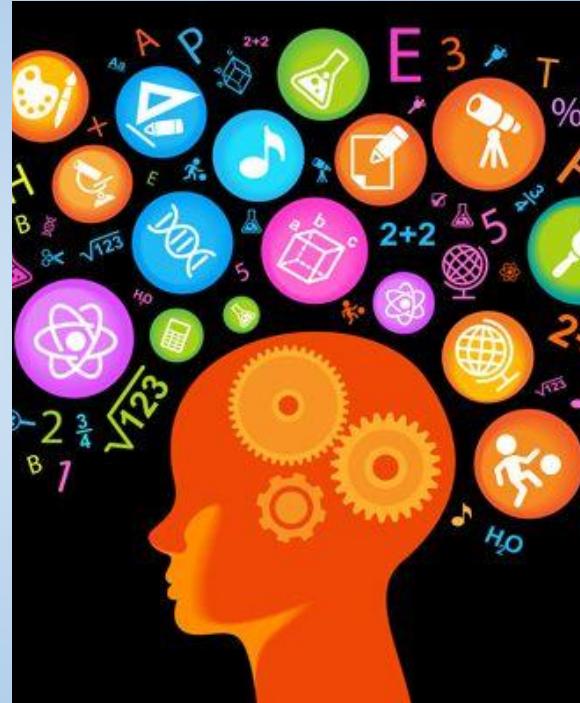
- Create a crash algorithm for self-driving cars
- Get a Co-op at a well-known software company
- Get a Doctor of Philosophy Degree (Ph. D)

Multiple Intelligences

Logical /

Verbal / Linguistic

Visual / Spatial





Logical / Mathematical

Ability to use reason, logic, and numbers

- Think conceptually in logical and numerical patterns
- Always curious about the world around them
- Handling mathematical problems

$$M_e = \sigma T^4 \quad \phi_e = \frac{L}{2\pi} \int \frac{\Delta \Psi}{2\pi} = \frac{\Delta x}{\lambda_1} = \frac{x_2 - x_1 S_2}{\lambda} \quad V = C$$
$$\psi = E\psi \quad \Delta t = \frac{\Delta t'}{\sqrt{1 - \frac{v^2}{c^2}}} \quad 4\pi r^2 \quad X_L = \frac{U_m}{I_m} = \omega L = 2\pi f L \quad F_g = \frac{m}{R_m} \quad R_m = \frac{C}{T^k}$$
$$E = \hbar\omega \quad U = \frac{|E_{AB}|}{|E_{PA} - E_{PB}|} = |\varphi_A - \varphi_B| / T = \frac{4 n_1 n_2}{(n_2 + n_1)^2} \quad \omega =$$
$$V = \frac{m\hbar}{2\pi r m_e} \quad \Phi_E = \frac{F_e}{\rho_0} = k \frac{\varphi}{r^2} \quad m = N_m \cdot m_0 = \frac{\varphi}{N_A} \frac{M_m}{M_m} \quad E = \frac{E_c}{q} \int_{-a/L}^{+a/L} \sin(\omega t + \phi) dy$$
$$\frac{M_m}{N_A} = \frac{M_r \cdot 10^{-3}}{N_A} \quad l_t = l_0 (1 + d \Delta t) \quad I = \frac{U_e}{R + R_i} \quad 2 \quad \frac{\sin \alpha}{\sin \beta} = \frac{V_1}{V_2} = \frac{w_2}{w_1} \quad V =$$
$$Im_e \quad R = \rho \frac{l}{S} \quad E = mc^2 \quad \frac{\sin \alpha}{\sin \beta} = \frac{V_1}{V_2} = \frac{w_2}{w_1} \quad V =$$
$$l(x) = \sqrt{2/L} \sin \frac{n\pi x}{L} \quad \beta = \frac{\Delta I_c}{\Delta I_B} \quad \phi_e = \frac{\Delta E}{\Delta t} \frac{m_1}{x} + \frac{m_2}{y}$$
$$\iint_S \vec{J} d\vec{S} \quad \vec{S} = \frac{1}{\mu_0} (\vec{E} \times \vec{B}) \quad \phi = \frac{2\pi \sin 2\lambda}{\lambda} \frac{y}{x} \quad \iint_D d$$
$$\frac{RN_A}{m_m} = \sqrt{\frac{3R_m T}{M_r \cdot 10^{-3}}} \quad E = \frac{1}{2} \hbar \sqrt{k/m} \quad \phi = \frac{2\pi \sin 2\lambda}{\lambda} \frac{y}{x} \quad \iint_D d$$
$$E_h = Sh\rho g \quad E = \frac{\hbar k^2}{2m} \quad PC = \frac{1 AU}{r} \quad S \quad R = \frac{U}{I} F_v$$
$$\frac{\partial_1 \cos 2\theta_2}{(\theta_1 - 2\theta_2) \sin(2\theta_1 + 2\theta_2)} \quad f_0 = \frac{1}{2\pi \sqrt{CL}} \quad \sigma = \frac{\Omega}{S} \quad M = \vec{F}_d \cos$$
$$\frac{\partial_1 \cos 2\theta_2}{(\theta_1 - 2\theta_2) \sin(2\theta_1 + 2\theta_2)} \quad \vec{C} \vec{F}_{12} = \vec{pp} \partial \vec{B} \quad S \quad I_m^2 = U_m^2 \left[\frac{1}{R^2} + \left(\frac{1}{x_c} - \frac{1}{x_L} \right)^2 \right]$$

Logical / Mathematical

- Scientists
 - Engineers
 - Computer Programmers
 - Computer Scientist
 - Researchers
 - Accountants
 - Mathematicians
-
-

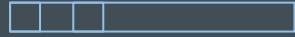


Verbal / Linguistic

Ability to use words and language

- Developed auditory skills
- Generally elegant speakers
- Use language to present ideas





Verbal / Linguistic

- Critic
- Journalist
- Writer
- Teacher
- Lawyer
- Politician
- Translator
- Speech Pathologist



Visual / Spatial

Ability to perceive the visual

- Tend to think in pictures
- Use mental images to remember info.
- Enjoy looking at maps, charts, pictures, videos, and movies



Visual / Spatial

- Navigators
- Inventors
- Architects
- Mechanics
- Engineers
- Map Topologist



My Blueprint



Personality Code (Myers - Briggs)

Introverted - Energized by being alone

iNtuitive - Focuses on ideas and concepts

Thinking - Uses logic to make decisions

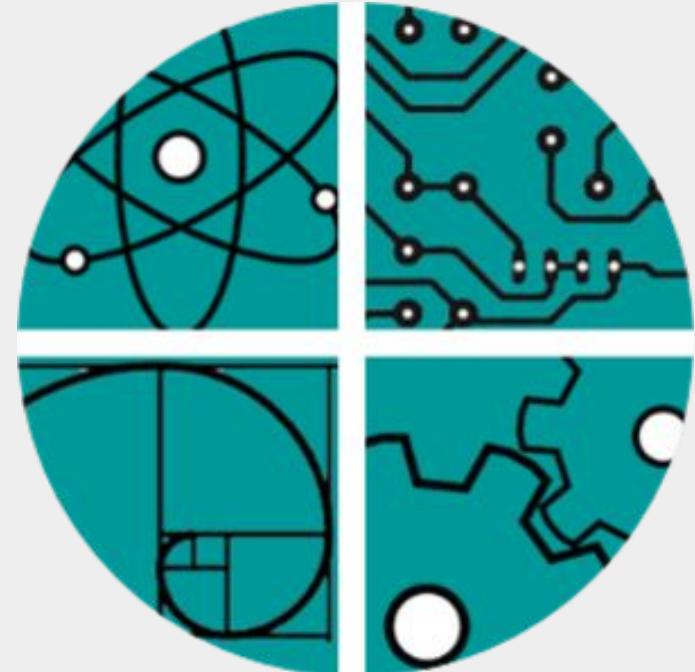
Perceiving - Has flexible plans

Career Clusters

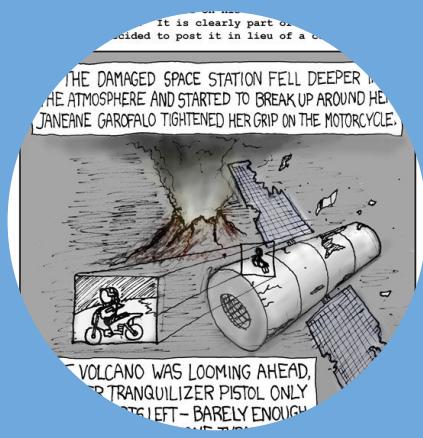
Science & Technology

Engineering

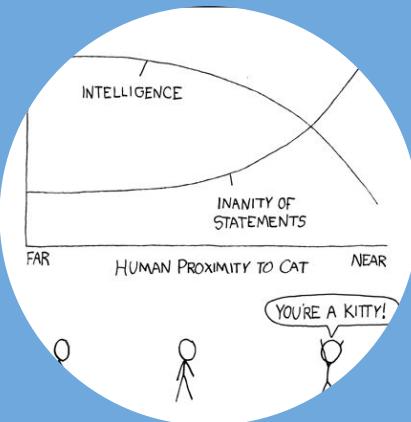
Math



Occupation Compatibility Matches



Atmospheric and
Space Scientist
85%



Statistician
84%



Computer Scientist
80%

Holland Hexagon



Personality Descriptions



Investigative /
Thinker

- Learning about the world around them



Enterprising / Persuader

- Influencing others



Conventional /
Organizer

- Working with detail

Thinker - Persuader

Agricultural Engineer (2148)

- Design agricultural resources
- Develop new uses for waste
- Research and use methods to conserve soil, water, or energy



Thinker - Organizer

Actuary (2161)

- Compile and analyze data to create statistics
- Predict when events occur
- Help decide prices for insurance



"There must be some mistake. According to our actuary tables I'm going to live to 83."

Persuader - Thinker

Business Consultant (0124)

- Create and put e-business strategies in place
- Gather data on company image
- Create important documents



HH Occupations, Clusters, NOC



Engineering Project
Manager (0211)

Natural & Applied Sciences



Computer Programmer
(2163)

Natural & Applied Sciences



Computer Systems Analyst
(2162)

Natural & Applied Sciences

Career Cruising Career Pathways



Biomedical Engineer (2148)

Natural & Applied Sciences



Aerospace Engineer (2146)

Natural & Applied Sciences

Career Cruising Career Pathways



Nuclear Engineer (2132)

Natural & Applied Sciences



Software Engineer (2173)

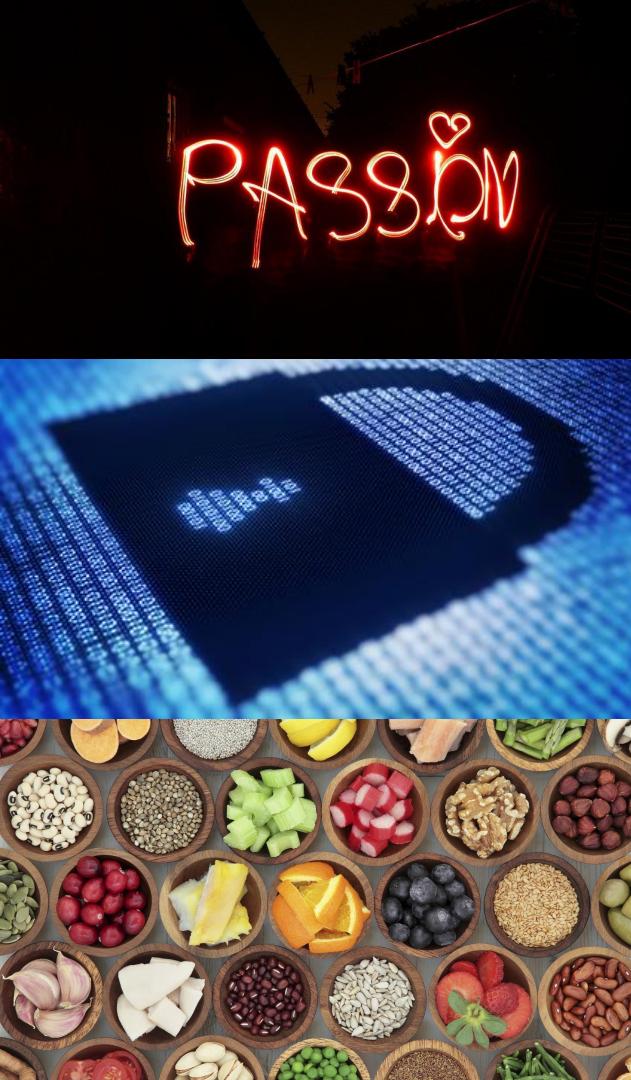
Natural & Applied Sciences



Bioinformatics

Specialist (2121)

Natural & Applied Sciences

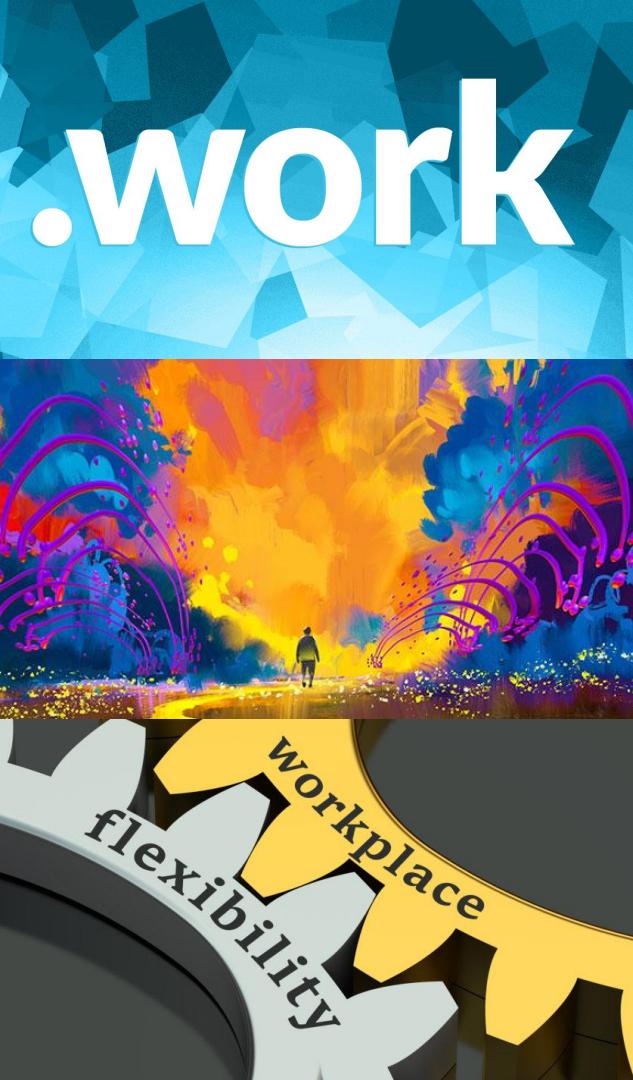


Career Values

Passion

Information

Variety



Work Lifestyle Values

What I do is more important than the amount of money I make

I am able to be creative

The hours I work are flexible

Transferable Skills

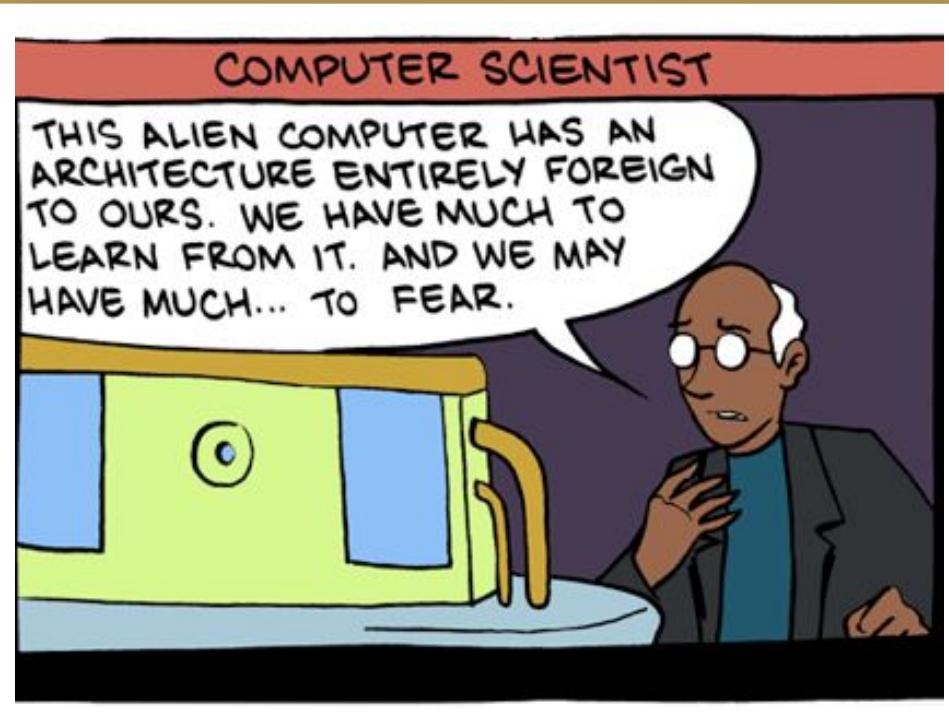
Proficient with Python and C/C++ for the Arduino

Strong Communication Skills

Able to collaborate with others easily

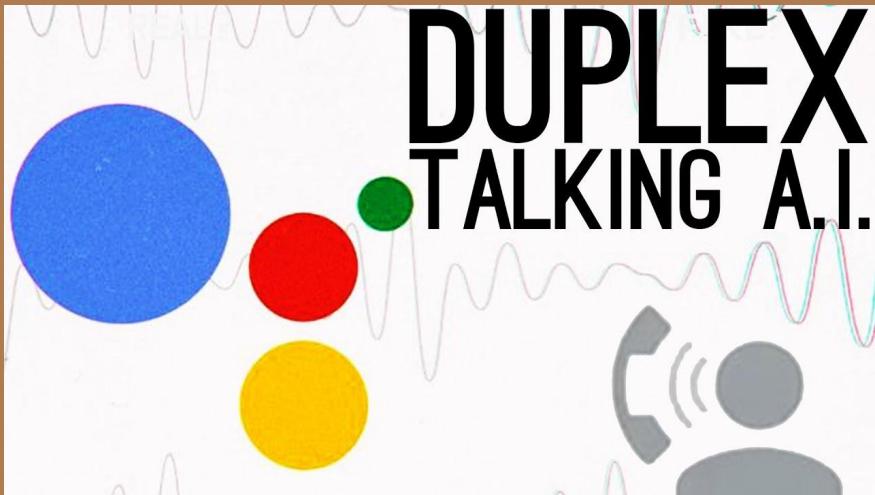
Experience working with children





Computer Scientist

Dhrumil Patel

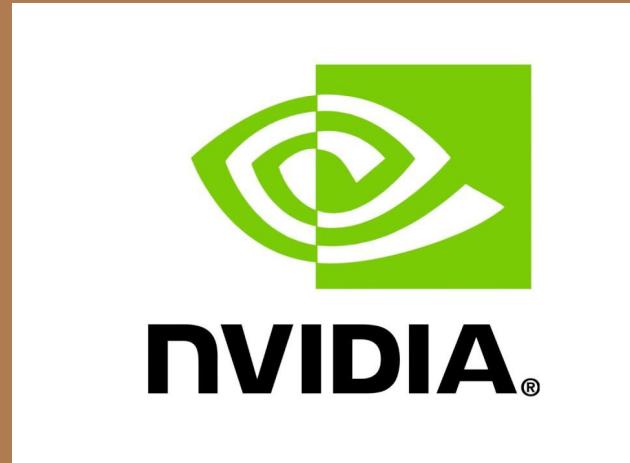
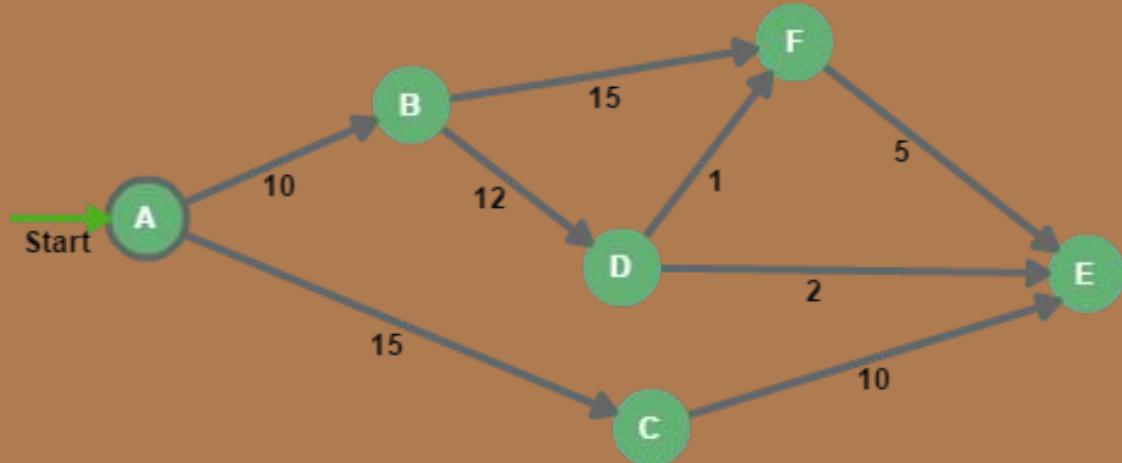


Job Description

- Create and improve computer algorithms
- Their work often leads to great technological advancements
- Work on a more theoretical level

Job Description

- Many find work at software companies
 - Software Application Developers
 - Computer Systems Analysts
- Research



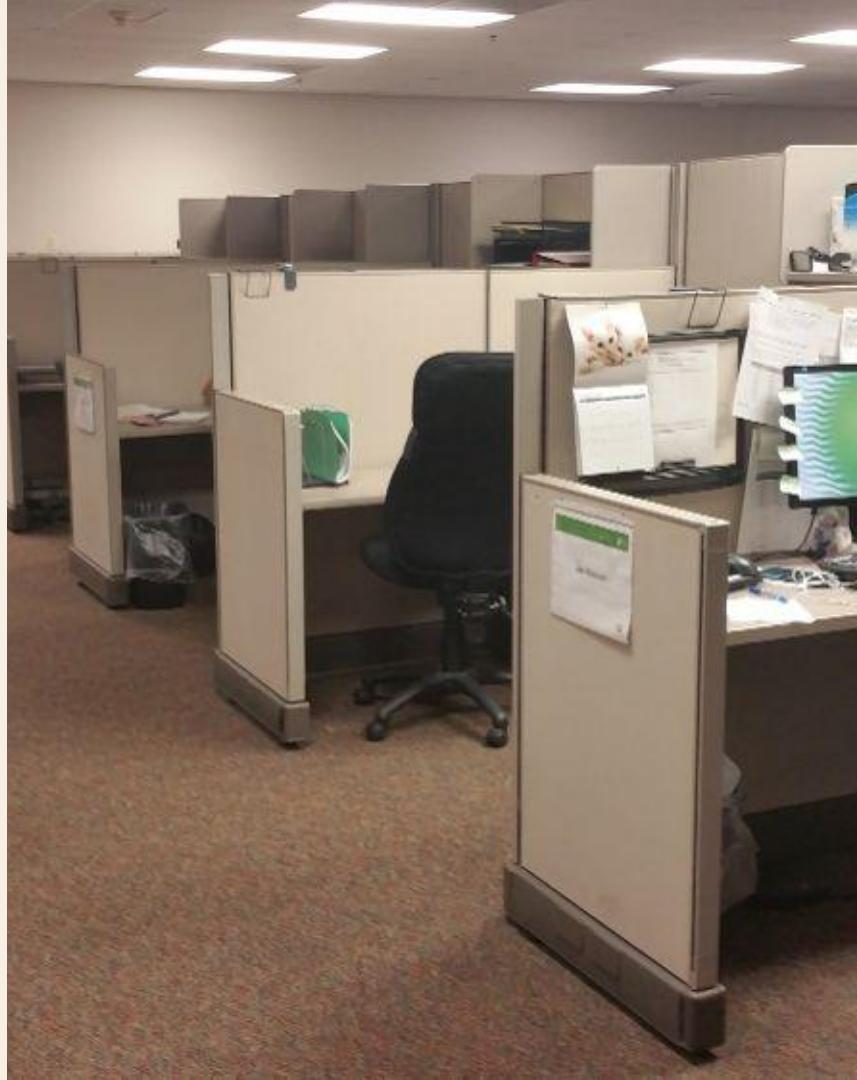


Job Description

- Analytical Skills
- Ingenuity
- Detail - Oriented
- Logical Thinking
- Math Skills
- Communication Skills

Job Description

- Not physically demanding, but can be stressful
- Workers feel pressured to perform
- Professors interact with students regularly and have their own research



High-School Requisites

- OSSD
- Courses:
 - Adv. Functions (MHF4U)
 - Calculus and Vectors (MCV4U)
 - English (ENG4U)
- One other grade 12U course
- Minimum graduating average: 85%



(Advised) Perform well on programming contests (CCC) and math contests (Euclid)
AP Computer Science, Calculus BC



UNIVERSITY OF WATERLOO
FACULTY OF MATHEMATICS
David R. Cheriton School
of Computer Science

Bachelor of Computer Science

- 5 year program with co-op
- Focuses on the study of software, algorithms, programming, and the limits of computation
- Students learn to combine theory and application to describe problems so that machines can solve them.
- Students learn about managing large scale programs, the power, limitations, and organization of computer software and hardware
- Tuition: \$17,446, Other costs: \$13,709
- Cost for one year is \$31,155



Scholarships



- Merit Scholarship
 - All students eligible
 - \$1,000 entrance scholarship
 - Early May Average of 85% to 89.9%
- Mathematics National Scholarship
 - 15 applicants
 - Eligible for: Canadian Citizen / Permanent Resident
 - \$12,000 to \$25,000 spread over 8 academic terms



Scholarships

- Entrance Scholarships
 - Up to 200 applicants
 - \$5,000 to \$10,000 over four years
 - one year scholarships ranging from \$1,000 to \$3,000
 - Admission Information Form and Euclid results
- OSAP
 - Financial aid problem for Ontario students to help pay for post-secondary education
 - Apply at their website or at financial aid office at your university / college



Salary

- Starting
 - \$55,000 / year
- Experienced (5 - 10 years)
 - Upwards of \$150,000 / year



Future Trends

- Social
 - Increased demand as professors retire
 - Professionals are researching topics like Artificial Intelligence and Machine Learning, etc
- Economic
 - Professionals can expect to make between \$55,000 and \$150,000 per year
 - Advancing technology attracts investors to invest in developing technologies like Virtual Reality
- Technological
 - Technology in the discipline is always advancing with new strides being made (Google Duplex)
 - New tools and software is always being developed



Future Trends

Social:

Microsoft's acquisition of github has made a lot of developers move a lot from Github to Gitlab

Economic:

Microsoft will need to expend resources to upgrade GitHub

Technological:

GitLab offers other different features from GitHub



Labour Market Information

- There will be a labour shortage, with more job openings than seekers.
- 11% of computer scientists are self-employed
- 98% of computer scientists are working full time
- 17% of computer scientists are women



Related Careers

- Application analyst
- Applications developer
- Data analyst
- Games developer
- Information systems manager
- Systems analyst

```
<?php get_header(); ?>
<?php language_attributes(); ?>
<?php bloginfo('language'); ?>
<?php wp_head(); ?>
<?php wp_title('|', true, 'right'); ?>
<?php rel="profile" href="http://gmpg.org/xfn/11"; ?>
<?php fruitful_get_favicon(); ?>
<?php if (IE 9)><script src="<?php echo get_template_directory(); ?>/css/ie9.css" type="text/javascript"></script>
<?php wp_head(); ?>
<?php body_class(); ?>
<?php if ($menu_pos == 'header') { ?>
    <div id="page-header" class="hfeed s12w">
        <?php $theme_options = fruitful_get_theme_options();
        $logo_pos = $menu_pos - "1";
        if (isset($theme_options['logo_pos'])) {
            $logo_pos = esc_attr($theme_options['logo_pos']);
        }
        if (isset($theme_options['menu_pos'])) {
            $menu_pos_class = fruitful_get_menu_pos_class($menu_pos);
            $menu_pos_type = fruitful_get_menu_pos_type($menu_pos);
            $responsive_menu_type = fruitful_get_responsive_menu_type($menu_pos);
            $responsive_menu_class = fruitful_get_responsive_menu_class($menu_pos);
        }
    </div>
<?php } ?>
```

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