

STEVEN FREHN

ANDREW DEAGON

NAME: ANDREW DEAGON AGE: 17
NAME: STEVEN FREHN AGE: 18
HOME: PALMDALE, CA
SCHOOL: HIGHLAND HIGH SCHOOL

ANDREW DEAGON AND STEVEN FREHN HAVE BEEN BEST OF FRIENDS THROUGHOUT HIGH SCHOOL. THEY ALSO SHARE A LOVE OF SPORTS, MUSIC, AND ESPECIALLY SCIENCE AND ENGINEERING.



WHEN ANDREW AND STEVEN READ A MAGAZINE ARTICLE ABOUT ELECTROACTIVE POLYMERS (POLYMERS THAT EXPAND WHEN AN ELECTRIC CHARGE IS APPLIED), THEY BEGAN TO CONSIDER USEFUL APPLICATIONS FOR THIS PHENOMENON.



STEVEN'S SKILL IN PHYSICS AND ANDREW'S INTEREST IN BIOLOGY LED THEM TO RESEARCH THE POSSIBLE USE OF E.A.P.S. FOR ARTIFICIAL MUSCLES. THE PROBLEM, HOWEVER, IS THAT MUSCLES WORK BY CONTRACTION, BUT E.A.P.S WORK BY EXPANSION.



AFTER MORE THAN 500 HOURS OF RESEARCH AND EXPERIMENTATION, ANDREW AND STEVEN DISCOVERED THAT BY CONSTRUCTING PAIRS OF CONES MADE FROM MANY LAYERS OF DIELECTRIC E.A.P. MATERIAL, THEY COULD HARNESS ITS EXPANSION PROPERTIES TO PRODUCE A CONTRACTING MOTION.



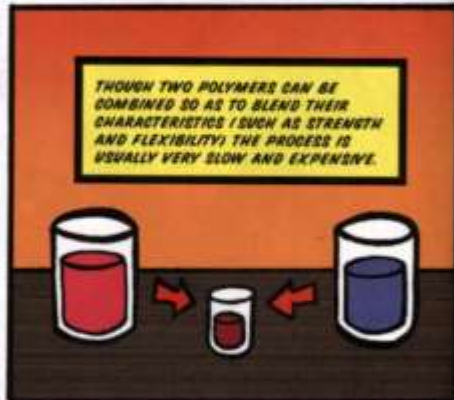
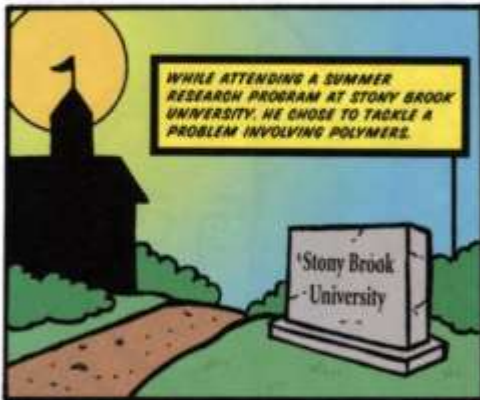
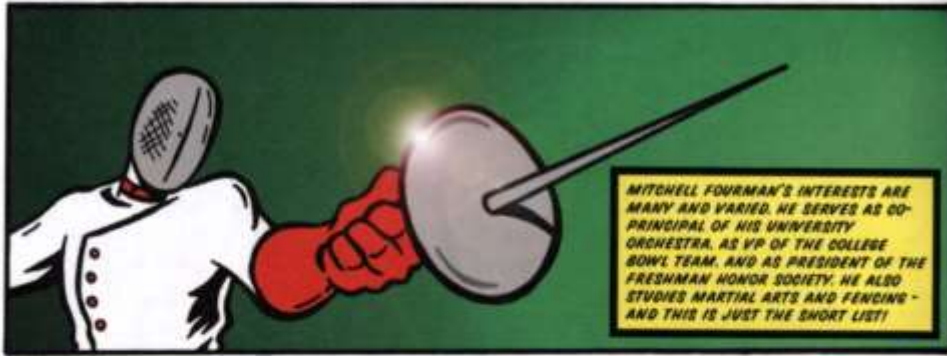
THE DI-CONICAL CONTRACTING ACTUATOR WAS A 2004 SIEMENS-WESTINGHOUSE 3RD PLACE TEAM NATIONAL FINALIST, AND IS PRESENTLY BEING PATENTED.



AFTER GRADUATION FROM HIGH SCHOOL, ANDREW AND STEVEN PLAN TO PURSUE COLLEGE DEGREES IN MECHANICAL ENGINEERING AS THEY CONTINUE TO DEVELOP THEIR INVENTION.

MITCHELL FOURMAN

NAME: MITCHELL FOURMAN
AGE: 17
HOME: STONY BROOK, NY
SCHOOL: WARD MELVILLE HIGH SCHOOL



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YUNCHAO LOU

NAME: YUNCHAO LOU
AGE: 16
HOME: WEST BLOOMFIELD, MI
SCHOOL: WYLLIE E. GROVES
HIGH SCHOOL

YUNCHAO LOU WAS BORN IN SHANGHAI AND MOVED WITH HER FAMILY TO THE U.S. WHEN SHE WAS FIVE. SHE COMPETES AT THE STATE LEVEL IN PIANO, PLAYS VIOLIN IN THE METROPOLITAN YOUTH SYMPHONY, AND ALSO ENJOYS TENNIS, DEBATE AND ART.

THOUGH YUNCHAO NEVER ASPIRED TO BECOME AN INVENTOR, A HEAR-TRAGEDY IN HER NEIGHBORHOOD PROMPTED HER TO ADDRESS A SERIOUS POTENTIAL SAFETY HAZARD INVOLVING HOME APPLIANCES.

AN ABSENT-MINDED NEIGHBOR ONCE LEFT FOOD COOKING ON THE STOVE WHILE SHE WENT UPSTAIRS. SHE FORGOT ABOUT THE FOOD, AND SINCE SHE WAS LISTENING TO LOUD MUSIC, SHE COULD NOT HEAR THE SMOKE ALARM WHEN THE FOOD BURST INTO FLAMES. SHE NARROWLY AVOIDED A DISASTROUS HOUSE FIRE.

YUNCHAO HAD NEVER STUDIED ELECTRONICS, BUT THROUGH DILIGENT RESEARCH, HARD WORK AND TRIAL AND ERROR, SHE SUCCESSFULLY CREATED AN EFFECTIVE FIRE SAFETY PRODUCT CALLED...

...THE ALARM-TRIGGERED SHUT-OFF APPLIANCE SYSTEM (ATSAS). THIS DEVICE CAN BE PROGRAMMED TO RECOGNIZE AN AUDIO ALARM AND AUTOMATICALLY TURN OFF ANY APPLIANCE TO WHICH IT IS ATTACHED. THE ATSAS HAS BEEN AWARDED US PATENT NO. 10-929-818.



AFTER GRADUATION, YUNCHAO PLANS TO ATTEND COLLEGE AND PURSUE A CAREER IN THE MEDICAL FIELD.

NAME: DAVID MEIGOONI
AGE: 17
HOME: LEXINGTON, KY
SCHOOL: PAUL LAURENCE DUNBAR
HIGH SCHOOL

DAVID MEIGOONI

DAVID MEIGOONI IS A MULTI-TALENTED INDIVIDUAL WITH ACCOMPLISHMENTS IN SPORTS, MUSIC, ART, AND LITERATURE, BUT HIS PRIMARY INTEREST IS IN SCIENCE AND RESEARCH.



THIS BECAME MORE EVIDENT IN 4TH GRADE WHEN HE DEVELOPED A PROJECT CALLED "MOM'S FEAR OF RADIATION", IN WHICH HE PROVED THAT MOM RECEIVED MORE RADIATION WHILE OUTSIDE GARDENING THAN SHE DID WHILE INSIDE WATCHING TELEVISION.

LITTLE DID DAVID KNOW THAT HIS INTEREST IN RADIATION AND RESEARCH WOULD COME INTO PLAY YEARS LATER WHEN HE READ AN ARTICLE STATING THAT OCCURENCES OF BOWEL CANCER ARE SIGNIFICANTLY LESS AMONG THE INDIAN CULTURE.



HE SURMISED THAT THERE MIGHT BE A RELATIONSHIP BETWEEN INDIAN DIET, WITH ITS EXTENSIVE USE OF CURRY, AND THE LOW OCCURENCE OF BOWEL CANCER. DAVID'S LAB RESEARCH REVEALED THAT INGESTING CURCUMIN, THE MAJOR COMPONENT OF CURRY, NOT ONLY HELPS PREVENT CANCER, BUT IT ALSO CAN BE USED TO SENSITIZE CANCER CELLS SO THAT ONLY ONE SEVENTH RADIATION IS NEEDED TO DESTROY THEM.



DAVID'S PROSE, A NOVEL METHOD OF ENHANCING PROSTATE CANCER RADIOSENSITIZATION BY NATURAL COMPOUND CURCUMIN, WON MANY AWARDS, INCLUDING THE 2004 INTEL FOUNDATION ACHIEVEMENT AWARD, THIRD PLACE IN THE 2004 INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR FOR MEDICINE AND HEALTH, AND WAS A 2004 SIEMENS-WESTINGHOUSE SCIENCE COMPETITION FINALIST.



DAVID IS PRESENTLY ATTENDING THE UNIVERSITY OF LOUISVILLE IN KENTUCKY, AND PLANS TO BECOME A DOCTOR OF ONCOLOGY.

NAME: ARPAN SATSANGI
AGE: 18
HOME: SAN ANTONIO, TX
SCHOOL: NORTHSIDE HEALTH
CAREERS HIGH SCHOOL

ARPAN SATSANGI

ARPAN SATSANGI WAS BORN INTO A HOME WHERE SCIENCE RESEARCH WAS A DAILY ACTIVITY. AT THE AGE OF THREE, ARPAN WOULD WORK DILIGENTLY IN HIS FATHER'S CHEMICAL LAB IN INDIA, PRETENDING TO CREATE BETTER INSECTICIDE.



BUT ARPAN'S SCIENTIFIC PURSUITS TOOK A SERIOUS TURN DURING FRESHMAN BIOLOGY CLASS WHEN HIS TEACHER STATED THAT PHOSPHOLIPIDS (CHEMICALS THAT COMPROMISE CELL MEMBRANES AND ATTRACT CALCIUM IN BONES) CONTRIBUTED TO THE HARDENING OF ARTERIES.



THIS SPARKED AN IDEA IN ARPAN AS TO HOW THIS CHEMICAL COULD BE USED TO HELP PEOPLE WHO HAVE REQUIRED RECONSTRUCTIVE DEVICES, SUCH AS HIP, KNEE, OR OTHER BONE REPLACEMENTS.



ARPAN'S RESEARCH LED HIM TO CREATE LIVING BONE ON METALLIC SURFACES BY APPLYING A PHOSPHOLIPID COATING SEEDED WITH BONE STEM CELLS. THIS ALLOWING MORE SUCCESSFUL BONE ATTACHMENT TO IMPLANTS.



THIS PROCESS, OPTIMIZATION OF BIOMIMETIC OSTEOBLAST RESPONSE ON PHOSPHOLIPID-MODIFIED IMPLANT SURFACE FOR BONE REGENERATION, WON THE 2002 SIGMA XI STUDENT RESEARCH CONFERENCE AND COMPETITION, AND THE 2003 SIEMENS WESTINGHOUSE NATIONAL COMPETITION FOR MATH, SCIENCE, AND TECHNOLOGY.

ARPAN PRESENTLY ATTENDS TEXAS A&M WHERE HE IS MAJORING IN CELLULAR AND MOLECULAR BIOLOGY.



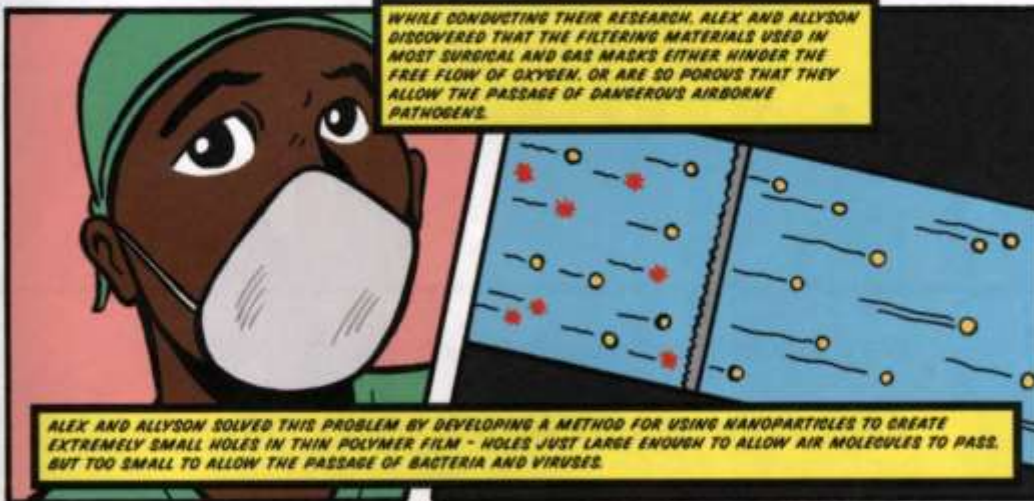
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NAME: ALEX THACHARA AGE: 16
 HOME: ROSLYN HEIGHTS, NY
 SCHOOL: THE WHEATLEY SCHOOL

ALEX THACHARA

NAME: ALLYSON HO AGE: 16
 HOME: SUGARLAND, TX
 SCHOOL: WILLIAM P. CLEMENTS HIGH SCHOOL

ALLYSON HO



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