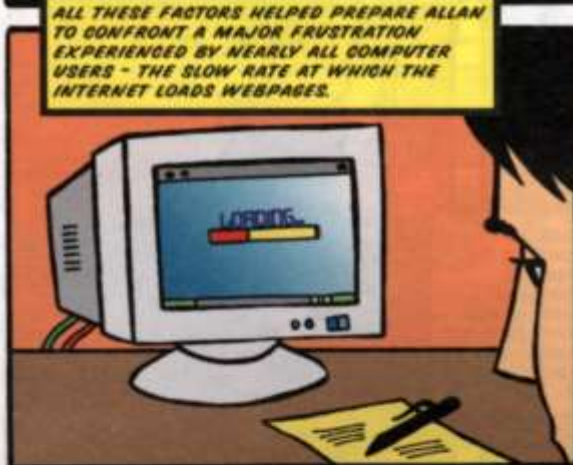


# Allan Chu

- ALLAN CHU
- AGE 18
- SARATOGA, CALIFORNIA
- LZ40 LOSSLESS DATA COMPRESSION



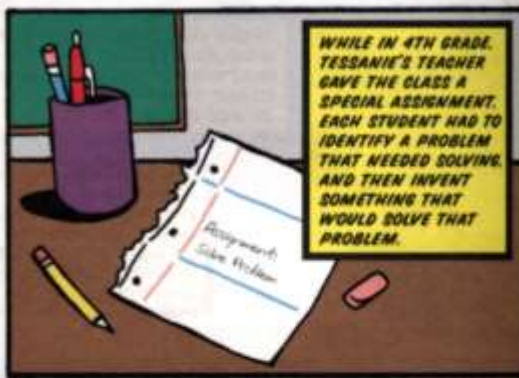


# Tessanie Marek

- TESSANIE MAREK
- AGE 11
- SALADO, TEXAS
- THE EASY CRUTCHES



TESSANIE MAREK IS AN ECLECTIC TEXAN GAL WHO ENJOYS A WIDE RANGE OF ACTIVITIES: PIANO, MATHEMATICS, CHEERLEADING, BASKETBALL, SINGING, DANCING, AND EATING EXTRA HOT SPICY SALSA!



WHILE IN 4TH GRADE, TESSANIE'S TEACHER GAVE THE CLASS A SPECIAL ASSIGNMENT. EACH STUDENT HAD TO IDENTIFY A PROBLEM THAT NEEDED SOLVING, AND THEN INVENT SOMETHING THAT WOULD SOLVE THAT PROBLEM.



TESSANIE FOUND HER PROBLEM AT CHURCH. THE YOUTH DIRECTOR HAD RECENTLY UNDERGONE SURGERY ON HIS HIP, AND HE COMPLAINED ABOUT THE STRAIN OF KEEPING HIS INJURED LEG BENT WHILE ON CRUTCHES.



TESSANIE DECIDED TO SOLVE THIS PROBLEM BY ADDING AN ADJUSTABLE KNEE SUPPORT TO ONE OF THE CRUTCHES. THIS ALLOWED THE USER TO REST THE INJURED LEG DIRECTLY ON THE CRUTCH AND THUS AVOID STRAIN OR MUSCLE CRAMPS.



THE EASY CRUTCH WAS A FINALIST IN THE 2002 CRAFTSMAN/NSTA YOUNG INVENTORS PROGRAM, AND WAS AWARDED A U.S. PATENT. TESSANIE'S GOAL AFTER GRADUATION IS TO STUDY LAW AT TEXAS A&M.



# Mark Mazumder

- MARK MAZUMDER
- AGE 18
- LITTLE ROCK, ARKANSAS
- COATING STENTS TO PREVENT ARTERIAL REBLOCKAGE

MARK MAZUMDER IS A MULTI-TALENTED YOUNG MAN WHO IS A CREATIVE WRITER, MUSICIAN, ATHLETE, AND WORLD TRAVELER...AND, IN 9TH GRADE, "INVENTOR" COULD BE ADDED TO THE LIST.



THAT WAS THE YEAR A CARDIOLOGIST FRIEND INVITED MARK TO OBSERVE AN OPEN-HEART SURGERY IN WHICH THE SURGEON IMPLANTED A STENT TO OPEN A BLOCKED ARTERY.

WHEN ARTERIES GET BLOCKED, THIN METAL TUBES, CALLED STENTS, ARE INSERTED TO OPEN THE BLOCKAGE BY EXPANDING THE PATHWAY FOR BLOOD FLOW. UNFORTUNATELY, ABOUT 25% OF PATIENTS EXPERIENCE REFORMATION OF BLOCKAGE.

MARK STUDIED THIS PROBLEM AND INVENTED A STENT WITH AN IMPROVED METHOD OF COATING THAT PREVENTS CORROSION OF THE STENT, AND DOES NOT BREAK DOWN AS THE STENT EXPANDS DURING INSERTION.

THE COATING ALSO INCORPORATES DRUGS WHICH PROMOTE THE GROWTH OF NEW CELL TISSUE WHILE PREVENTING REBLOCKAGE.

MARK'S INVENTION, COATING STENTS TO PREVENT ARTERIAL REBLOCKAGE, WON MANY AWARDS, INCLUDING 2ND PLACE IN THE 2001 INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR, 3RD PLACE IN THE 2002 NATIONAL JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM, 2ND PLACE IN THE 2002 AIR FORCE NATIONAL SCIENCE COMPETITION, WAS A 2003 NATIONAL MERIT SCHOLARSHIP SEMI-FINALIST, AND WAS A FINALIST IN THE 2003 SIEMENS WESTINGHOUSE SCIENCE, MATH, AND TECHNOLOGY COMPETITION.

AFTER GRADUATION, MARK PLANS TO ATTEND COLLEGE WHERE HE WILL WORK TOWARD A DEGREE IN EITHER WRITING OR SCIENCE.



# Brandon Palmen

- BRANDON PALMEN
- AGE 19
- ROCHESTER, MINNESOTA
- EFFICIENT RE-TARGETING OF VIRUS VECTORS FOR GENE THERAPY



EVER SINCE BRANDON PALMEN TAUGHT HIMSELF TO WALK AS AN INFANT, THE WORLD HAS STRUGGLED TO KEEP UP WITH HIS ACCOMPLISHMENTS.



FOR EXAMPLE, MANY PEOPLE CAN CLAIM TO HAVE CAUGHT THE MEASLES, BUT HOW MANY CAN CLAIM TO HAVE CAUGHT AND HARNESSSED THE MEASLES SO AS TO MAKE THEM DO SOMETHING HELPFUL? HERE'S THE STORY...



WHEN BRANDON WAS 15, HE READ IN A MEDICAL JOURNAL AN ARTICLE ABOUT GENE THERAPY. HE WAS SO FASCINATED BY WHAT HE READ THAT HE CALLED THE AUTHOR, DR. STEPHEN RUSSELL, WHO WORKED AT THE NEARBY MAYO CLINIC, AND ASKED IF HE COULD WORK IN THE LAB.



DR. RUSSELL RELUCTANTLY AGREED, SO, BRANDON SPENT WEEKENDS AND AFTER SCHOOL IN THE LAB LEARNING EVERYTHING THAT HE COULD ABOUT MOLECULAR MEDICINE.



WITHIN A YEAR AND A HALF, BRANDON HAD DEVELOPED A METHOD BY WHICH A PROTEIN COULD BE ADDED TO THE SURFACE OF A MEASLES VIRUS PARTICLE SO THAT IT COULD BE QUICKLY AND CONVENIENTLY TARGETED TO ATTACK CANCER CELLS.

BRANDON'S PROCESS, THE EFFICIENT RE-TARGETING OF VIRUS VECTORS FOR GENE THERAPY, WAS AWARDED 2ND PLACE IN THE 2002 INTEL INTERNATIONAL SCIENCE AND ENGINEERING FAIR, WON THE 2001 UNITED STATES PATENT AND TRADEMARK OFFICE FIRST PLACE GRAND AWARD, AND THE 2002 NATIONAL SCIENCE FOUNDATION KOREA-USA PACIFIC RIM INITIATIVE AWARD. BRANDON WAS ALSO A 2001 SIEMENS SCIENCE AND TECHNOLOGY COMPETITION SEMI-FINALIST, AND A 2002 UNITED STATES PRESIDENTIAL SCHOLAR.

BRANDON IS PRESENTLY STUDYING BIOCHEMISTRY AT HARVARD. AFTER GRADUATION, HE PLANS TO PURSUE A PHD IN BIOCHEMISTRY AND POSSIBLY ATTEND MEDICAL SCHOOL.



• JUSTIN RIEBELING  
 • AGE 13  
 • MILLSTADT, ILLINOIS  
 • SPEED GRAIN CART

# JUSTIN RIEBELING



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