A stylized world map in a light blue color, centered on the Atlantic Ocean, serving as a background for the top half of the slide.

Predicting military violence

A dark blue world map is centered in the background of the slide. The continents are visible in a slightly lighter shade of blue. The title 'The Problem' is centered at the top, and a yellow horizontal line is positioned below it.

The Problem

- ❖ Military conflict is as old as humanity

The Problem

- ❖ Military conflict is as old as humanity
- ❖ Interstate disputes are very common

The Problem

- ❖ Military conflict is as old as humanity
- ❖ Interstate disputes are very common
- ❖ Some are resolved peacefully, some not

The Problem

- ❖ Military conflict is as old as humanity
- ❖ Interstate disputes are very common
- ❖ Some are resolved peacefully, some not
- ❖ Can we predict the outcome?

The Problem

- ❖ Military conflict is as old as humanity
- ❖ Interstate disputes are very common
- ❖ Some are resolved peacefully, some not
- ❖ Can we predict the outcome?
- ❖ Can these predictions inform decisions?



“

The supreme art of war is to subdue the enemy without fighting.

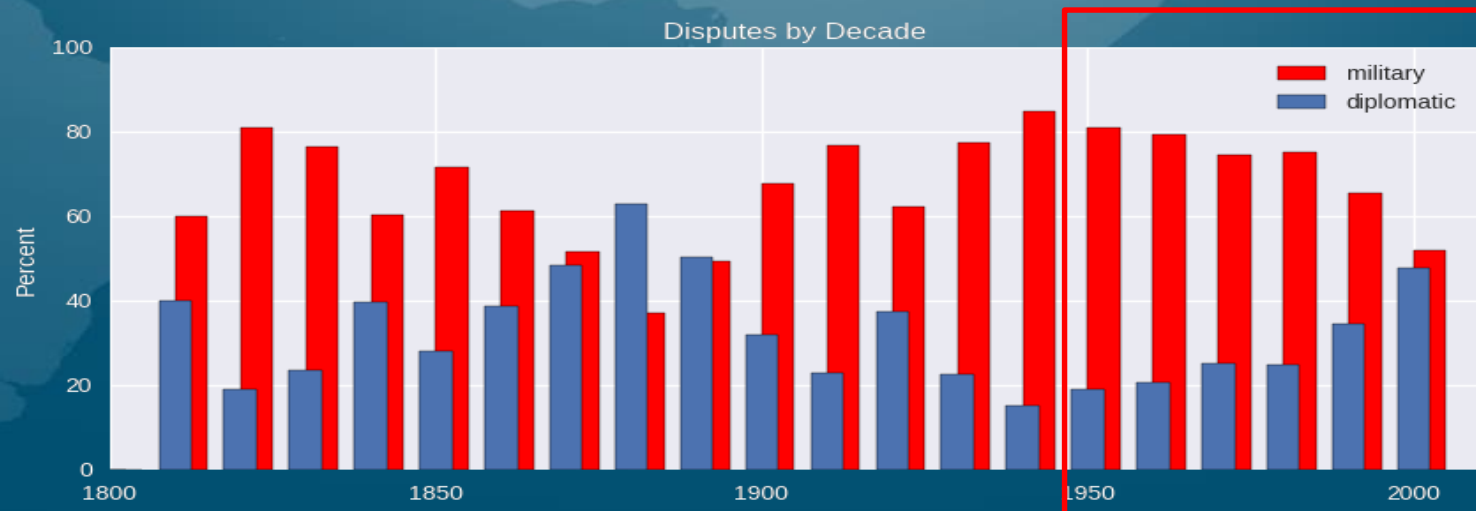
— Sun Tzu, The Art of War

The Correlates of War Project*

- ❖ Ongoing study of the conditions surrounding militarized disputes
- ❖ Data on interstate wars and disputes since 1816
- ❖ Assigns “hostility level” to each dispute

The Correlates of War Project*

- ❖ Ongoing study of the conditions surrounding militarized disputes
- ❖ Data on interstate wars and disputes since 1816
- ❖ Assigns “hostility level” to each dispute



*<http://www.correlatesofwar.org>

Model Data

Countries

QAT EGY LIB SOM BOS BOT PAR DRV LIT
BOL GHA SIE DRC PAK SIN PAN JOR TAW
SAL FIN RVN PRK SPN MYA KYR UAE SAU
CHA CHL LEB CHN URU LAO THI DJI NAM
BNG EOG PHI ZAM YEM MAW NIC NIG MAA
SYR MAC MAG LAT MZM MAL SUR GUA BEN
BEL GUI DEN GUY CRO ROK CEN UGA BUI
YUG BUL BFO AFG BLR GRG LBR GRC KZK
RWA ANG CZR MOR INS MON IND NOR CZE
COS SUD DOM KUW ISR PER SAF TAZ NEW
ETH COL NEP CON ECU SEN SRI FRN SWD
AUS CUB VEN KEN GDR ALG TUR ALB CDI
ITA NTH LES TAJ TUN HUN RUS MEX BRA
USA HAI AZE GNB SWZ CAO CAN CAM UKG
ERI BAH CYP POR UZB TOG POL GAB YPR
ZIM EST MLD HON IRQ SLV MLI AUL UKR
SLO IRN YAR IRE JPN GFR GMY JAM ARG NIR
ARM PNG

Model Data

Countries

QAT EGY LIP SOM BOS BOT PAR DRV LIT
BOL GHA SIE DRC PAK SIN PAN JOR TAW
SAL FIN RVN PRK SPN MYA KYR UAE SAU
CHA CHL LEB CHN URU LAO THJ DJI NAM
BNG EOG PHI ZAM YEM MAW TJC NIG MIA
SYR MAC MAG LAI MZM MAL SUT GUA BEN
BEL GUM DEN GUY CPO ROK CEN UGA BUL
YUG BIJL BIO AFG BLR GRG LBR GRC KZK
RWA ANG CZR MOR INS MON IND NOR CZE
COS SUD DOM KUW ISR PER SAF TAZ NEW
ETH COL NEP CON TCU SEN SPI FRN SWD
AUS CUB VEN KEN GLR ALG TUN ALB CDI
ITA NTH LES TAJ TUN HUN RUS MEX BRA
USA HAI AZE GNB SWZ CAC CAN CAM UNG
ERI BAH CYP PUR UZB TGO POL GAB YPR
ZIM EST MLD HON IRQ SLV MLI AUL UKR
SLO IRN YAR IRE JPN GFR GMY JAM ARG NIR
ARM PNG

Model Data

Countries

QAT EGY LIP SOM BOS BOT PAR DRV LIT
BOL GHG SIE DRC PAK SIN PAN JOR TAW
SAL FIN RVN PRK SPN MYA KYR UAE SAU
CHA CHL LEB CHN URU LAO THJ DJI NAM
BNG EOG PHI ZAM YEM MAW TIC NIG MAA
SYR MAC MAG LAT MZM MAL SUT GUA BEN
BEL GUY DEN GUY CPO ROK CEN UGA BUL
YUG BIJL BIO AFG BLR GRG LBR GRC KZK
RWA ANG CZR MOR INS MON IND NOR CZE
COS SUD DOM KUW ISR PER SAF TAZ NEW
ETH COL NEP CON ECU SEN SPT FRN SWD
AUS CUB VEN KEN GDR ALG TUN ALB CDI
ITA NTH LES TAJ TUN HUN RUS MEX BRA
USA HAI AZE GNB SWZ CAC CAN CAM UNG
ERI BAH CYP POR LIZR TOG POL GAB YPR
ZIM EST MLD HON IRQ SLV MLI AUL UKR
SLO IRN YAR IRE JPN GFR GMY JAM ARG NIR
ARM PNG

Previous Actions

threat to use force, threat to
blockade, threat to occupy
territory, threat to declare
war, threat to use chemical,
biological or nuclear weapons,
threat to join war, show of
force, alert, nuclear alert,
mobilization, fortify border,
border violation, blockade,
occupy territory, seizure,
clash, declaration of war, use
of chemical, biological or
nuclear weapons, begin war,
join war

Contiguity

no border, land
border, sea border
(up to 400 miles)

Previous Outcomes

victory, yield,
stalemate,
compromise, joins
ongoing war;
fatalities

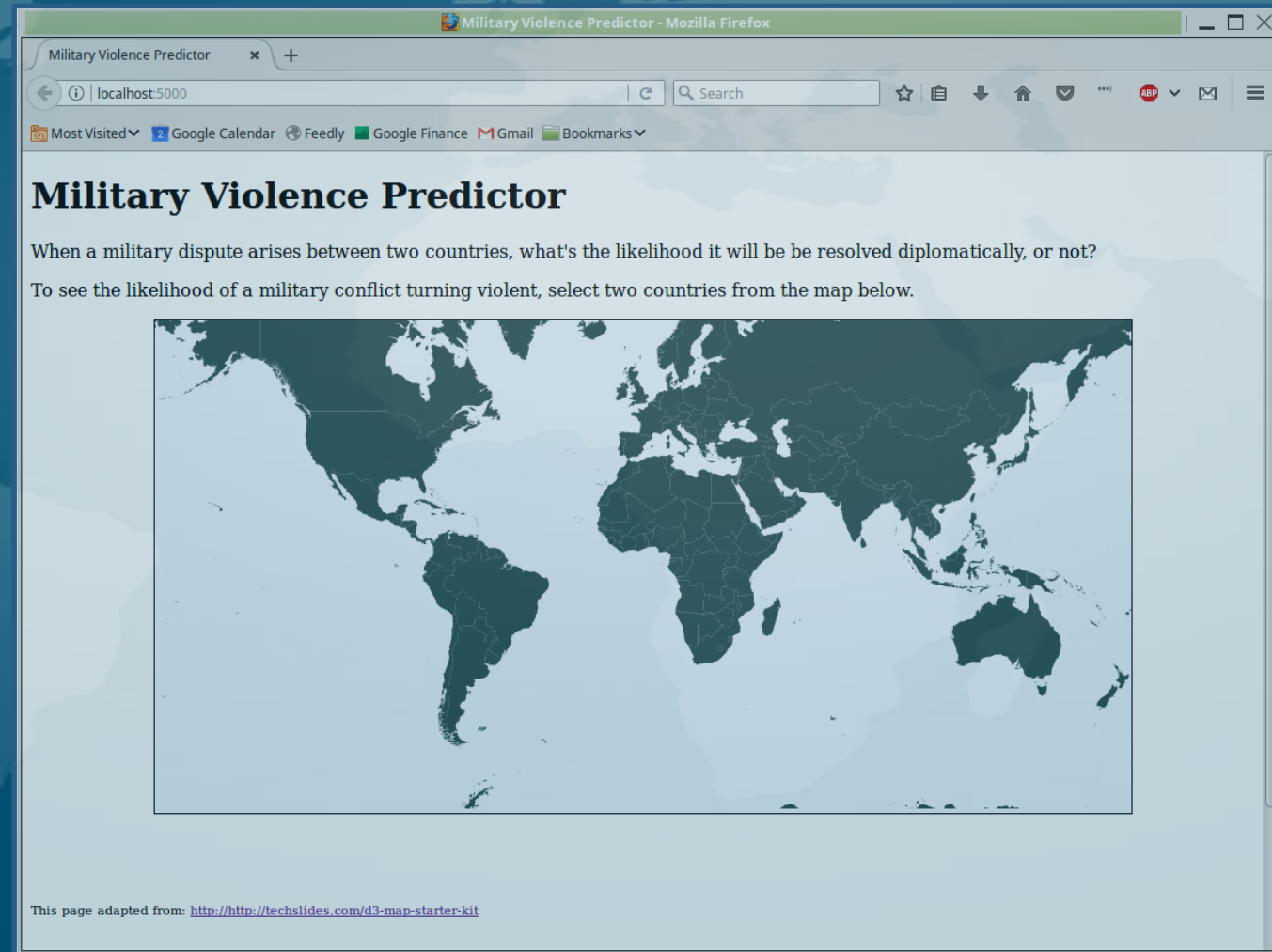
Relative Material capabilities

total population,
urban population,
military personnel,
military expenditures

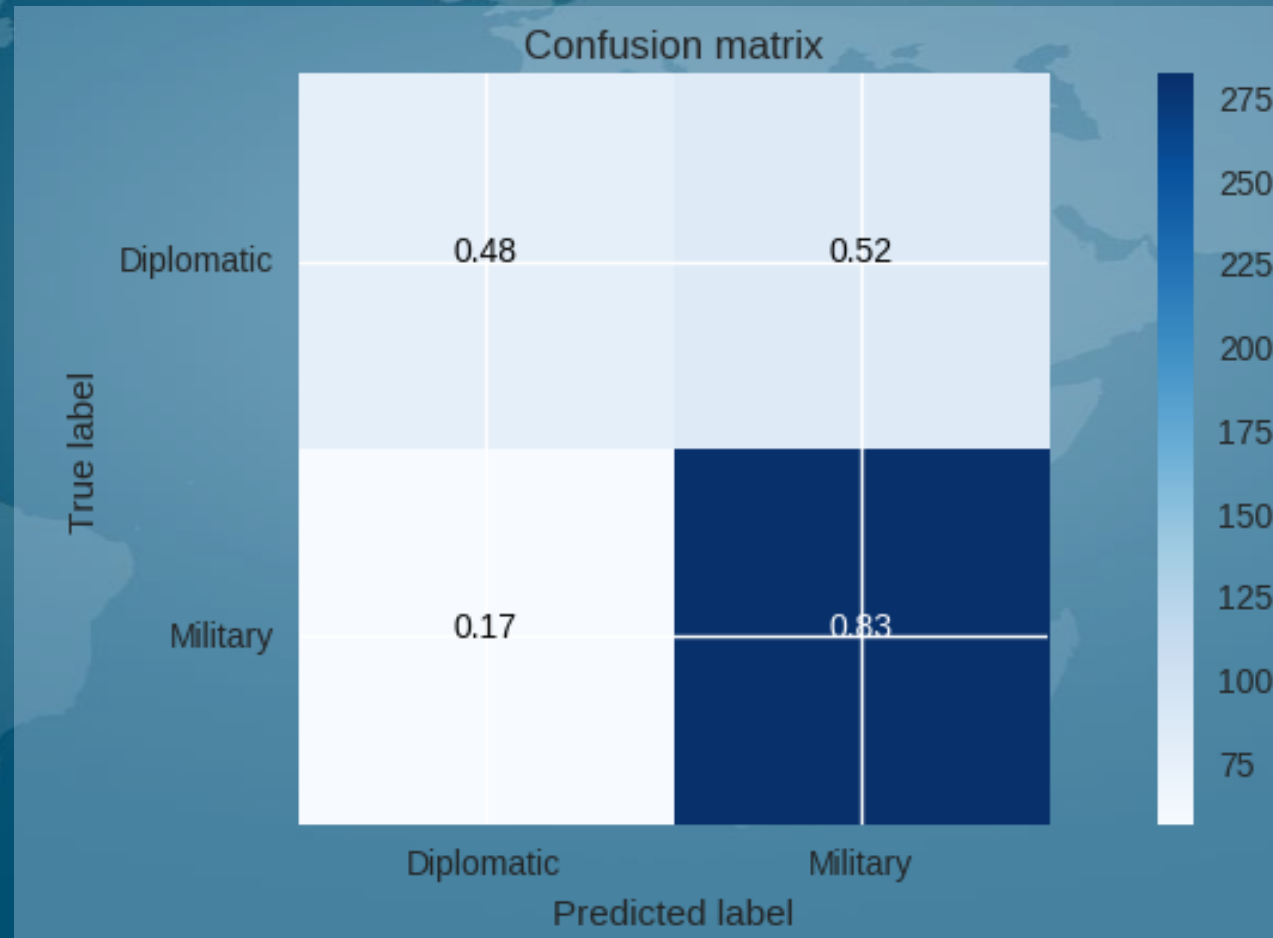
The Predictive Model

- ❖ Random forest classifier
- ❖ Maximize “recall” of military predictions
- ❖ Maximize “precision” of diplomacy predictions

Demo



Model Performance



A dark blue world map serves as the background for the slide. The continents are visible in a lighter shade of blue. The title 'Key Predictors' is centered at the top, and a list of six predictors is on the left side.

Key Predictors

- ❖ Relative military capability
- ❖ Relative population
- ❖ Previous fatalities
- ❖ Number of countries involved
- ❖ Major power involvement
- ❖ No border

Future Directions

- ❖ A more practical model
 - ❖ Treaties and alliances
 - ❖ Specific actors
 - ❖ Recent history

A dark blue world map is centered in the background, showing the outlines of continents. Two thin, horizontal yellow lines are positioned near the top and bottom edges of the slide.

Questions?

The Predictive Model

